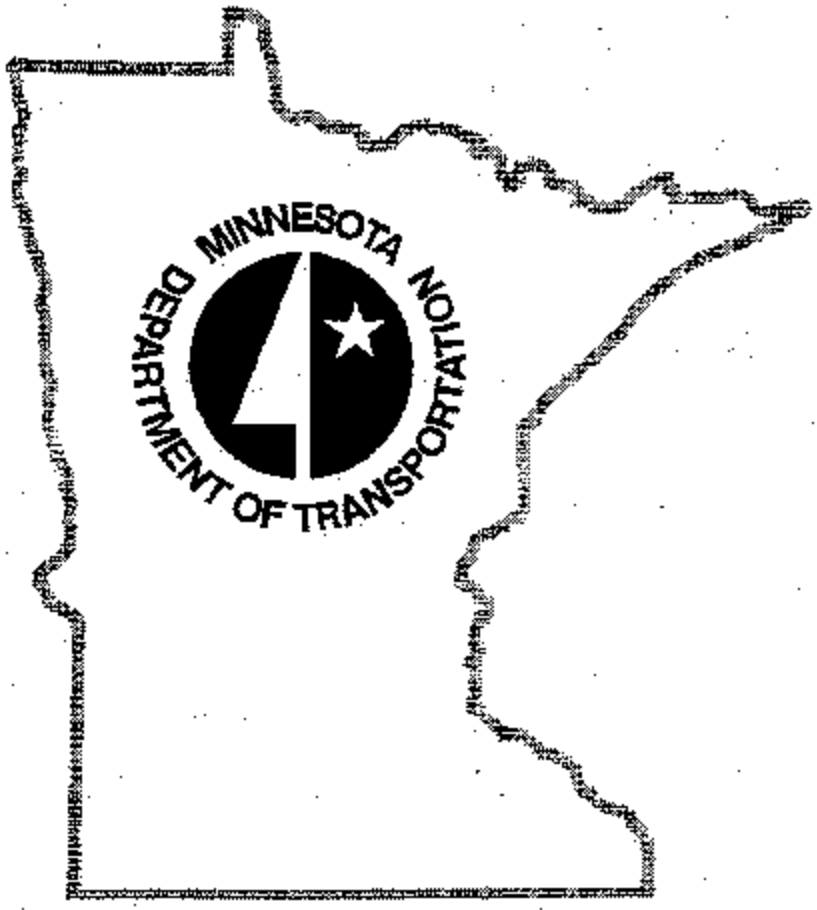
CONTRACT ADMINISTRATION

MANUAL



STATE OF MINNESOTA

DEPARTMENT OF TRANSPORTATION

To: Contract Administration Manual Users

From: Office of Construction & Innovative Contracting (OCIC)

Subject: April 15, 2005 Update of the Contract Administration Manual

The Contract Administration Manual has undergone an update. The update can be found at our website http://www.dot.state.mn.us/const/tools/conadminmanual.html This new April 15, 2005 edition will supercede the entire October1, 2002 edition.

After April 15, 2005 each section of the Manual will be updated by OCIC as the need arises. When updates occur OCIC will alert all Manual holders by E-mail. Also, any new updates will be posted on the Website as they occur.

We suggest that for future use, you copy the new Manual and insert it in any standard hard covered 3- ring binder. If you wish you can then use the old 22-hole punch cardboard section dividers out of your old maroon binder, (they will fit in a 3-ring binder) or you can make your own index tabs or dividers to suit your needs. **Hints for printing: Program your printer to print 2-sided (no flip) and if possible use 3-hole paper.**

The old maroon colored hard covered binders are no longer in stock and will be discontinued If you do opt to use your present maroon hardcover be aware that you will not be able to insert the new Manual in it unless you have a 22-hole punch apparatus available to you. (Obviously a 3-hole punch will not fit in the old maroon hard covered binder).

If you have any questions concerning this Manual call Denny Springer in OCIC @ 651-296-8473 or Karen Peters in OCIC @ 651-296-6896.
E-Mail: denny.springer@dot.state.mn.us or
karen.peters@dot.state.mn.us

OFFICE FAX 651-296-3811 Thank You

SUMMARY OF CONTENTS

Mn/DOT Forms required by section 5-591.420 are available on our Website at http://www.dot.state.mn.us/const/main/forms.html (Also see Page DOCMANUA- 92)

Note: This entire Contract Administration Manual is also available on our Website at http://www.dot.state.mn.us/const/main/cam.html
Can be printed and placed in a three ring binder type folder. Cardboard section tabs can be replaced with other form of index tabs.

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PROJECT SUPERVISION 5-591.200

Mn/DOT Forms required by section 5-591.420 are available on our Website At http://www.dot.state.mn.us/const/tools/forms.html (Also see Page DOCMANUA- 92)

ABBREVIATIONS

Specification 1101 "Abbreviations" should be reviewed for terms used in the Specifications and Plans. The following are only the abbreviations used in this manual:

ADEC	Assistant District Engineer of Construction
CARS	Contract Administration Record System
CAARS	Contract Administration Advanced Record System
CMS	Contract Management System
DBE	Disadvantaged Business Enterprise
DSAE	District State Aid Engineer
EEO	Equal Employment Opportunity
FAP	Federal Acceptance Plan
FHWA	Federal Highway Administration
IRA	Item Record Account
ISTEA	Intermodal Surface Transportation Efficiency Act
MAP	Minnesota Acceptance Plan
MEW	Minor Extra Work
MMUTCD	Minnesota Manual Uniform Traffic Control Devices
MN/DOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency
MTP	Minnesota Transportation Plan
NHS	National Highway System
PR/PE	Process Review / Product Evaluation
SP	State Project

REFERENCE MANUALS

Mn/DOT has manuals and guides concerning virtually all phases of highway construction and design available for issue. These manuals and guides are intended

1. Road Design
2. Technical
3. Surveying and Mapping
4. Drainage
5. Standard Plates
6. Bridge Construction
7. Bridge Design
8. Bridge Standard Plans
9. Bridge Details
10. Bridge Maintenance
11. Right of Way
12. Contract Administration
13. Grading and Base
14. Bituminous
15. Concrete
16. Maintenance
17. State Aid
18. Traffic Engineering
19. Standard Signs
20. Standard Plans
21. Bikeways Design
22. Structural Metals
23. Minnesota Manual on Uniform Traffic Control Devices (Field Manual)
24. Project Managers Handbooks (Four Volumes)
25. Construction Specifications
26. Mn/DOT Organization and Functions
27. Commissioners Equipment Rental Schedule
28. Commissioners Equipment Rental Rate Blue Book

The Mn/DOT Organization and Functions Manual describe the organizational structure and functional responsibilities of all the different Offices. The following are brief excerpts from the above referenced manual:

The Office of Construction is involved in all phases of construction contracts. The Office is divided into sections that administers contract bids and approvals, manages construction activities, monitors and enforces labor compliance, investigates and resolves contractor claims, develops work zone safety practices, maintains the Mn/DOT Technical Certification program and revises construction specifications. The Office maintains liaison with districts, divisions, state and federal agencies, legislators, counties and municipalities, contractors, and citizens.

In general, a **Resident Office** ensures completion of construction contracts according to contract requirements, provides technical supervision for construction projects, coordinates the activities of public utilities, contractors, and other governmental agencies on construction projects, documents contract work progress for paying the contractors; informs property owners, news media, other governmental agencies, and the public of construction operations within the District; provides requested technical assistance to other governmental agencies on their construction projects and ensures all required traffic safety and control measures are taken in the construction areas.

The purpose of this section is to provide guidelines for administering projects that have Federal-aid funding. Section 1305 of the Transportation Equity Act for the 21st Century (TEA-21) amends Section 106 of Title 23- United States Code (USC), Project Approval and Oversight, to provide revised provisions for oversight of Federal-aid highway projects. Section 1601 of the TEA-21 replaces existing Section 117 of Title 23, Certification Acceptance (CA) with the HIGH PRIORITY PROJECTS PROGRAM, thus eliminating CA.

Amended Title 23 USC, Section 106 provides considerable flexibility to individual States and Federal Highway Administration (FWHA) division offices in reaching agreement on “responsibilities” for design, plans, specifications, estimates, right-of-way certification statements (part of PS&E), contract awards, and construction inspections/final acceptance of Federal-aid highway projects. It is important to realize the “responsibilities” refers only to the project actions noted in the preceding sentence. These are the same project actions for which States could assume responsibility under Title 23 USC, Section 106 prior to TEA-21.

Similar to past implementation of Section Title 23 USC, Section 106, States cannot assume responsibility for other Federal actions required under laws outside of Title 23 Code of Federal Regulations (CFR) (as an example, MEPA). Further, general Title 23 CFR requirements that apply to all projects, such as metropolitan and statewide planning procurement of services or contracts, disadvantaged business enterprises, wage rates, etc., continue to apply to projects where the State has assumed the responsibilities noted. There is no specific discussion in amended 23 USC, Section 106 of responsibilities that can be assumed by the States. However, amended Section 106(c)(4), which is a general requirement not relating to specific projects, indicates that FHWA may not assume any greater responsibility than the FHWA permitted under Title 23 on September 30, 1997, except upon agreement between FHWA and the State.

Considering the language in revised Section 106(c)(4), that all States continue to have the opportunity to assume the responsibilities noted for the same types of Interstate projects as were allowed under Title 23 USC, Section 106 prior to TEA-21, these being: 1) all 3R projects and 2) new/reconstruction projects less than $1 million in cost. All Federally funded Design-build and Major Bridge projects will be handled as Full Oversight Projects. These projects are not limited to a specific road system and will include the Interstate, NHS and Non-NHS projects.

As of January 1, 2001 all new and active projects will be administered by the following:

All formerly PS&E and FAP projects: Use FFO procedures
All formerly MAP projects: Use SAFO procedures
All Formerly MTP projects: Use SLAFO procedures

FULL FEDERAL OVERSIGHT PROJECTS (FFO): (Formerly PS&E/FAP)

New or Reconstruction Projects on the Interstate system over $1 Million and all Design Build and Major Bridge Projects: For new Construction/Reconstruction projects (see Table 1 page FFP-9) with construction costs greater than $1 million, all project activities will be developed with full FHWA oversight and approval as shown in Table 1 (see end of section). Upon agreement by the FHWA Construction and Contract Administration (FHWA/CCA) Engineer and the Mn/DOT Project Liaison Engineer, large or complex rehabilitation projects will also be considered for full FHWA oversight. All Federal-aid Design Build projects will be full oversight.

Contract Awards: All FFO Projects will have the contract award approved by the FHWA/CCA prior to the Start of construction.

Processing Contract Changes (Supplemental Agreements): Contract Changes will be processed by either Major or Minor contract change processes. These processes are listed below. Time extensions will be addressed with all contract changes.

I. Major Contract Changes: Major Contract Changes are defined as changes to the plans and/or provisions and all major extra work that will significantly increase the cost of the project; alter termini, character, or scope of the work; or incorporate an experimental product or feature. All Major contract changes and major extra work must have approval by the FHWA/CCA Engineer in advance. More specifically, major contract changes and extra work include, but are not necessarily limited to, those changes that meet any of the following criteria:

1. "Significant cost" is defined as a Supplemental Agreement, Change Order, or overrun of an individual pay item equaling or exceeding $100,000. An overrun of two or more pay items equaling or exceeding $100,000 is not considered significant.

2. Revisions to the project termini including changes in the project limits.

3. Changes in "character" of the work including those which affect items such as environment, EEO provisions, right of way activities, and labor provisions.

4. Changes in "Scope" of the work including additions, deletions, or relocations of bridges and/or other major structures; revisions to the structural section above the sub-base; revisions to the geometric design of the mainline roadway, ramps, frontage roads or cross roads; and other features which are specifically defined in the project scope.

5. An experimental product or feature.

6. Termination of a Contract.

The Project Engineer will send a draft of the Supplemental Agreement ("Standard" or Part A & Part B) to the FHWA/CCA Engineer for approval. The FHWA will prepare Form 1365 and submit it to Mn/DOT Office of Construction and Innovative Contracting (Mn/DOT OCIC) for further processing.

II. Minor Contract Changes: Are all changes and extra work not defined as Major Contract Changes. Although these changes require written FHWA approval, approval will be performed at the time of Final Acceptance of the project. The work can be advanced prior to that approval. Mn/DOT OCIC will submit a copy of each Supplemental Agreement ("Standard" or Part A & Part B) to the FHWA/CCA Engineer. Each copy will be stamped "Federal Participation Anticipated" or "Federal Non-Participation" as appropriate.

III. Time Extensions: Time extensions will be addressed with all contract changes. Major Contract Time extensions require FHWA approval. The Project Engineer will notify the FHWA/CCA as soon as practical that a time extension is required for a project. The Project Engineer is responsible for writing the justification request and submitting it to the FHWA/CCA Engineer for approval. This approval will be performed at the time of approval of a Major Contract Change or at Final submittal.

IV. Contract Claims: A Contract Claim involving legal issue, or a settlement based on a legal opinion or is resolved through a Dispute Resolution Process will be handled in the same manner as a Major Contract Change. The Engineer must notify the Mn/DOT OCIC Claim Engineer and FHWA/CCA Engineer of a claim of this type.

Construction Inspections: The FHWA is responsible for coordinating, conducting and preparing construction inspections and reports.

The following are the types of construction inspections that may be conducted:

1. A Process Review/Product Evaluation (PR/PE) is a comprehensive review to evaluate procedures and controls. The purpose of a PR/PE is to provide oversight of construction and materials management activities, determine compliance with requirements on a statewide or district-wide basis and make recommendations to enhance the process/product being evaluated.

2. An Inspection In-depth is a thorough on-site review to evaluate a specific contract item, combination of items, or major phase of a project. Inspections in-depth may be accomplished on an individual project basis or on several projects with the findings summarized as a statewide or district-wide review.

3. A Project Inspection is an on-site review to evaluate activities, the quality and progress of the work, and if appropriate, to follow up on findings from previous inspections.

Final Inspections: The FHWA Construction and Contract Administration Engineer will perform final Inspection on all Full Federal Oversight projects.

Final Acceptance: The FHWA Construction and Contract Administration Engineer will be responsible for the Final Acceptance on all Full Federal Oversight projects.

Experimental Features: The Project Engineer must contact the Director of Mn/DOT Office of Research Services to coordinate inclusion of an experimental feature into a construction project. The use of an experimental feature that has not been included in the project plans is a Major Contract Change. Refer to "Experimental Features Procedures-For the Use of Experimental Features on Minnesota Highway Construction Projects" for implementation procedures. The

assigned FHWA Engineer will be responsible to approve the use of experimental features.

STATE ADMINISTERED FEDERAL OVERSIGHT (SAFO): (Formerly MAP)

All other Interstate and National Highway System (NHS) projects: Mn/DOT will assume all responsibilities in accordance with Section 106 of Title 23 USC. (See Table 1 at the end of this section) This applies to all design activities, Plans and Specifications approvals, concurrence in awards, construction inspection, contract changes, final acceptance and maintenance activities. This precludes the need for any FHWA approval or concurrence, except those actions that require FHWA approval outside of Title 23 USC (i.e., National Environmental Policy Act (NEPA), Title VI of the Civil Rights Act, Fair Housing Act, and the Uniform Relocation Assistance and Land Acquisitions Policies Act).

Contract Awards: All SAFO projects will have the contract award approved by Mn/DOT OCIC Pre-Award Unit.

Processing Contract Changes: All contract changes and extra work as defined previously under FFO will be approved by Mn/DOT OCIC as outlined in Section 5-591.350: Contact Changes.

Major Contract Changes: Major Contract Changes are defined as changes to the plans and/or provisions and all major extra work that will alter termini, character, scope of the work or incorporate an experimental product or feature. All Major contract changes and major extra work must have approval by Mn/DOT OCIC. More specifically, major contract changes and extra work include, but are not necessarily limited to, those changes that meet any of the following criteria:

1. Revisions to the project termini including changes in the project limits.

2. Changes in "character" of the work including those which affect items such as environment, EEO provisions, right of way activities, and labor provisions.

3. Changes in "Scope" of the work including additions, deletions, or relocations of bridges and/or other major structures, revisions to the

structural section above the sub-base, revisions to the geometric design of the mainline roadway, ramps, frontage roads or cross roads and other features which are specifically defined in the project scope.

4. Termination of a Contract.

Time Extensions: Time extensions will be addressed with all Contract Changes. The Project Engineer will notify Mn/DOT OCIC as soon as practical when a time extension is required for a project. Mn/DOT OCIC is responsible for approval of all time extensions. See Section 5-591.340: Contract Time Extensions for detail approval procedures.

Contract Claims: A Contract Claim will be treated in the same manner as a Contract Change except for any claim involving a legal issue or settlement based on a legal opinion or is resolved through a Dispute Resolution Process. The Project Engineer must notify the Mn/DOT OCIC Claims Engineer for assistance/approval. See Section 5-591-350: Claims for detail approval procedures. The Project Engineer will send a copy of the approved contract claim to FHWA/CCA Engineer for information purposes.

Construction Inspections: Mn/DOT OCIC is responsible for coordination of construction inspections. The State Construction Engineer may delegate the inspection responsibilities (coordinating, conducting, and preparing construction inspections and reports) to the appropriate Mn/DOT construction personnel

The following are the types of construction inspections that may be conducted. The same construction inspections described in the FFO section apply to SAFO projects.

Final Inspections: A final inspection is required for all SAFO projects. Final Inspection for SAFO projects is the responsibility of the Mn/DOT OCIC Construction Standards Engineer. The final inspection will be accomplished during an on-site review conducted at or near the completion of the work.

Final Acceptance: Final Acceptance for SAFO projects is the responsibility of both the Mn/DOT District/Division Office and Mn/DOT Office of Financial Management/Financial Operations Project Accounting. Copies of all Supplemental Agreements, Change Orders and Authorization forms (i.e. FHWA-1365 Records of Authorization to Proceed with Major Contract Revision) are to be included with the Final Acceptance package along with a copy of the Final Inspection Report.

Experimental Features: The Project Engineer must contact the Director of Mn/DOT Office of Research Services to coordinate inclusion of an experimental feature into a construction project. The use of an experimental feature that has not been included in the project plans is a Contract Change. Refer to "Experimental Features Procedures-for the Use of Experimental Features on Minnesota Highway Construction Projects" for implementation procedures

STATE/LOCAL ADMINISTERED FEDERAL OVERSIGHT (SLAFO): (Formerly MTP)

NON-NHS Projects: Mn/DOT will be the responsible agency for oversight and administration of all Non-NHS Projects similar to a manner as FHWA is for the above section: **Full Federal Oversight Projects.** These projects will be listed on routes OFF the NHS system. The FHWA role will be that of stewardship of these projects. As such, FHWA will use Process Review/Product Evaluation (PR/PE), or other similar type of methods to assure compliance with Federal law and regulations.

Under this program the State will be directly responsible for performing oversight and compliance reviews with all federal laws and regulations under these project.

Contract Awards: All State/Local Administered Federal Oversight Projects will have the contract award approved by Mn/DOT OCIC Pre-Award Unit. With only prior approval by both FHWA and Mn/DOT, a local agency may manage a project constructed off the Interstate and the NHS by Delegated Contract Process (DCP).

Processing Contract Changes: All contract changes and extra work as defined previously under FFO will be approved by Mn/DOT OCIC as outlined in Section 5-591.350: Contact Changes.

Major Contract Changes: Major Contract Changes are defined as changes to the plans and/or provisions and all major extra work that will alter termini, character, scope of the work, or incorporate an experimental product or feature. All Major contract changes and major extra work must have approval by Mn/DOT OCIC. More specifically, major contract changes and extra work include, but are not necessarily limited to those changes, which meet any of the following criteria:

1. Revisions to the project termini including changes in the project limits.

2. Changes in "character" of the work including those which affect items such as environment, EEO provisions, right of way activities, and labor provisions.

3. Changes in "Scope" of the work including additions, deletions, or relocations of bridges and/or other major structures; revisions to the structural section above the sub-base; revisions to the geometric design of the mainline roadway, ramps, frontage roads or cross roads and other features which are specifically defined in the project scope.

4. Termination of a Contract.

Time Extensions: Time extensions will be addressed with all Contract Changes. The Project Engineer will notify Mn/DOT OCIC as soon as practical that a time extension is required for a project. Mn/DOT OCIC is responsible for approval of all time extensions. See Section 5-591.340: Contract Time Extensions for detail approval procedures.

Contract Claims: A Contract Claim will be treated in the same manner as a Contract Change except for any claim involving a legal issue or settlement based on a legal opinion or is resolved through a Dispute Resolution Process. The Project Engineer must notify the Mn/DOT OCIC Claims Engineer for assistance/approval. See Section 5-591-350: Claims for detail approval procedures. The Project Engineer will send a copy of the approved contract claim to FHWA/CCA Engineer for information purposes.

Construction Inspections: Mn/DOT OCIC is responsible for coordination of construction inspections. The State Construction Engineer may delegate the inspection responsibilities (coordinating, conducting, and preparing construction inspections and reports) to the appropriate Mn/DOT construction personnel

The following are the types of construction inspections that may be conducted. The same construction inspections described in the FFO section apply to SAFO projects.

Final Inspections: A final inspection is required for all SLAFO projects. Final

Inspection for SLAFO projects is the responsibility of the Mn/DOT OCIC Construction Standards Engineer. The final inspection will be accomplished during an on-site review conducted at or near the completion of the work.

Final Acceptance: Final Acceptance for SAFO projects is the responsibility of both the Mn/DOT District/Division Office and Mn/DOT Office of Financial Management/Financial Operations Project Accounting. Copies of all Supplemental Agreements, Change Orders and Authorization forms (ie FHWA-1365 Records of Authorization to Proceed with Major Contract Revision) are to be included with the Final Acceptance package along with a copy of the Final Inspection Report.

Experimental Features: The Project Engineer must contact the Director of Mn/DOT Office of Research Services to coordinate inclusion of an experimental feature into a construction project. The use of an experimental feature that has not been included in the project plans is a Contract Change. Refer to "Experimental Features Procedures-for the Use of Experimental Features on Minnesota Highway Construction Projects" for implementation procedures.

SYSTEM	Interstate			NHS (non-I)	Non-NHS
Oversight	New or Reconstruction $1millior or greater (or by agreement)**	New or Reconstruction Less than $1 million (or by agreement)**	State-Funded Projects	State Administered **	State Administered **
Governing Policy	Federal Highway Administration Policy	Federal Highway Administration Policy **with** Approval Actions Delegated to Mn/DOT	State Policy FHWA Design Stds.	Federal Highway Administration Policy **with** Approval Actions Delegated to Mn/DOT	State Policy
PROCEDURES	**FFO**	**SAFO**	**SF**	**SAFO**	**SLAFO**
ACTIONS					
Plans, Spec & Estimates Approval	FHWA	Mn/DOT	NA	MN/DOT	Mn/DOT
Authorization	FHWA	Mn/DOT	NA	Mn/DOT	Mn/DOT
Concurrence In Award	FHWA	Mn/DOT	NA	Mn/DOT	State Policy And Procedures
Supplemental Agreement Approval	FHWA – Advance Approval for Major Changes – All others at Final Voucher	Mn/DOT	NA	Mn/DOT	
Claims	FHWA				
Time Extensions	FHWA Advance Approval for Major Changes & Termination of Contract				
Materials Certification	Required	Mn/DOT	NA	Mn/DOT	Mn/DOT
FHWA-45 & FHWA-47	Completion, review/approval, and Transmittal to FHWA HQ by Mn/DOT thru FHWA/MN		NA	Mn/DOT	State Policy And Procedures
Project Inspection	FHWA Inspections- In-depth & included in PR/PE sampling	Mn/DOT Significant Projects Included in PR/PE sampling	NA	Mn/DOT	State Policy And Procedures
Final Inspection And Voucher	FHWA	Mn/DOT	NA	Mn/DOT	State Policy and Procedures

** All Federal-aid Design Build Projects will be Full Federal Oversight (FFO)

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PARTNERING

Mn/DOT has been utilizing partnering on selected projects since 1992. Partnering is recommended for large or complex projects that will require the careful coordination of construction activities to ensure the results desired.

Partnering is a formalized process for building teamwork and cooperation between groups of people that will be working together to construct a project. The most visible aspect of partnering is the initial one or two day facilitated workshop, which sets the process in motion.

Parties involved with the partnering process include but are not limited to, Prime Contractor, Sub Contractors, major suppliers, utility companies, project designers, local government representatives and other parties that will be directly affected by the project.

Partnering is specified in the Special Provisions, if the Engineer and Contractor elect to participate, all partnering costs are shared equally between the Department and Contractor.

For information on how to make arrangements for the inclusion of a partnering workshop in a project, or to obtain additional information about partnering in general, contact the Office of Construction and Innovative Contracting Claims Engineer at 296-0862.

NOTE: Partnering activities must comply with the Departments ethics policies as explained in "Mn/DOT Policy Guideline No. 94-2-G-1, Code of Ethics Guidelines. This policy addresses, among other things, a positive public perception of Department activities.

Absolutely, no alcoholic beverages may be paid for by the Department for it shares of Partnering costs.

Authority to Suspend a Contract

By specification, the Engineer/Supervisor or the Inspector has the authority to suspend a contractor's operation. The following are example conditions:

1. Failure of the contractor to correct unsafe conditions.
2. Failure to carry out provisions of the contract.
3. Failure to carry out orders.
4. Failure to voluntarily cease work during adverse weather conditions.
5. When conditions are unsuitable for prosecution of the work.
6. For conditions deemed to be in the public interest.
7. When the State desires to make further studies or changes prior to proceeding with the work.

Suspension of the work is a serious step, which may result in delaying completion of the contract and in considerable cost to the contractor: and should only be resorted to when the contractor has failed to take remedial action within a reasonable time after being notified to do so. Suspension should only be ordered by the Head Inspector or Engineer/Supervisor on the project. The Inspector must notify the Engineer/Supervisor of this action as soon as possible giving all the information necessary to support it.

Suspension orders should be in writing except when work must be stopped at once and time does not permit issuance of a written order. A written order confirming the verbal order must be issued at the earliest possible time. The order must state the specific reason for the suspension referring to the specifications under which the action is taken; what actions, if any, the contractor must take before resuming work and the conditions under which the suspension will be revoked. A Change of Contract Construction Status form will be issued as soon as conditions are favorable for resuming work. See Contract Time section for discussion on suspension and resumption of work.

Authorized Signatures

Some contracts, while assigned to an Engineer for supervision, may be further assigned to a "Project Supervisor". This title must be used in signing all documents required in administering the project. At the discretion of the Assistant District Engineer, the Office of Construction and Innovative Contracting will accept the Project Supervisor's signature on all contract documents to include the following that previously required an Engineer's signature or initials:

Change of Contract Construction Status Report

Partial and Final Payment Vouchers

Request for Fund Encumbrance/De-encumbrance

Time Extension Recommendations

Supplemental Agreements

Change Orders

Work Orders – Minor Extra Work

Weekly Statement of Working Days

Need for Extra Enforcement

Speed limit signs do not always reduce vehicle speeds in the work zone. In many cases, extraordinary efforts must be taken to enforce speed limits and reduce the risk of traffic accidents within the work zone. Law enforcement officials provide the means for enforcing work zone speed limits. Mn/DOT employs the Minnesota State Patrol (MSP) for extra enforcement on federally funded construction projects.

Mn/DOT has specific procedures for obtaining extra enforcement funding on Mn/DOT State Projects (S.P.). Federal funding is available for extra enforcement if approved in advance by the State Construction Engineer. These requests are considered for approval on a project-by-project basis.

Extra Enforcement Policy

It is the policy of the Minnesota Department of Transportation (Mn/DOT) and the Federal Highway Administration (FHWA) to employ extra enforcement and surveillance efforts when it is expected to increase the safety of the travelling public or construction personnel. The need for extra enforcement should be identified early in the project development process. Timely planning increases the effectiveness of the extra enforcement effort and the likelihood it will be approved.

Truck Inspections

Truck inspections may also be included in the extra enforcement effort. MSP personnel, either Troopers or Law Compliance Representatives (LCR), can provide truck inspection support on a contract basis. Obtaining funding and support follows basically the same procedure as that used for extra enforcement. A major difference is that truck inspections require more flexibility in its planning and operation.

Planned versus Immediate Requests

Planned use of extra enforcement and truck inspections ensures enough time for processing and provides better coordination between MN/DOT and the MSP. Prior planning provides efficient use of safety and enforcement resources. A planned request is always preferable to an immediate request.

Immediate requests are requests that take less than one week to process before enforcement is required. Procedures for immediate requests are the same as those for planned requests, except that immediate requests may be faxed or emailed. This informal request must still be followed by an official written request per the format illustrated later in this chapter.

Procedure

It is important that extra enforcement and truck inspection requests are approved by the State Construction Engineer before contracting with the MSP. This is a stipulation to receiving federal funding. When MSP support arrives, it is important that a Mn/DOT representative be on-call to sign the MSP Weekly reports at the end of each shift. It is a good practice to give the MSP Trooper a cell phone or pager number to call at the conclusion of the shift. Ensure the MSP report identifies the correct S.P. number.

The following outlines the extra enforcement process:

Action	**Responsibility**
1. Analyze the phases of the project to identify which areas may require extra enforcement.	MN/DOT District
2. Contact the local State Patrol District to request assistance in the enforcement plan and to obtain an estimate of its cost.	MN/DOT District
3. Submit a request for extra enforcement services funding to the State Construction Engineer (see sample at end of this chapter); send a copy to the Work Zone Safety Coordinator.	MN/DOT District
4. Assist in the development of the Work Zone Enforcement Plan and provides an estimate of the cost.	State Patrol District
5. Evaluate the District request for extra enforcement or Truck Inspection services. Send approval, or reason for denial, to the requesting district.	Central Office
6. On approval, contract with the MSP for extra enforcement services. Coordinate provisions of the extra enforcement plan with the local MSP Captain, and modify the extra enforcement plan as needed.	MN/DOT District
7. Provide extra enforcement services. Coordinate with Project Engineer, or designated representative as needed.	State Patrol District
8. Validate MSP Weekly Report: sign at bottom, ensure correct S.P. appears; make log entry in construction diary.	MN/DOT District
9. Submit Weekly Reports with MN/DOT official's signature and S.P. number to State Patrol Headquarters.	State Patrol District
10. Submit invoices with appropriate S.P. number to MN/DOT Construction Office. . Ensure Weekly Report has MN/DOT official's signature, and correct S.P. number.	MSP Headquarters
11. Audit and track invoices and supporting documents. Submit MSP invoices to Finance Office for payment.	Central Office
12. Make payment to MSP.	Central Office
13. 13. Monitor the enforcement effort and modify as needed.	MN/DOT District

In the case of immediate requests, fax an information copy of the request to the attention of the Work Zone Safety Coordinator, Office of Construction and Innovative Contracting, at (651) 296-3811. Contact this office if you have not received a response within 24 hours.

Compensation for extra enforcement services will be the current MSP fee for contracted services, and will be on a flat fee basis.

The following are eligible for extra enforcement and truck inspection funding:

1. All contracted costs associated with extra enforcement and truck inspection services on an approved Mn/DOT State Construction project.

2. Travel time for enforcement personnel to and from the construction work zone as allowed by current labor contract.

3. Minimum payments, as provided by current labor contract and MSP policy.

The following do no qualify for extra enforcement or truck inspections funding:

1. Maintenance projects or locally initiated projects.

2. Patrolling outside of the work zone, except as provided by the extra enforcement plan, project engineer or his designated representative.

3. Time spent on bookings, warrants, etc., beyond the scope of extra enforcement duties.

4. When engaged in services not directly associated with extra enforcement, e.g., escorting contractor equipment, motorist assistance, etc. This applies even if these activities are conducted within the work zone.

5. Travel and incidental costs above those allowed by current labor contract.

SAMPLE

OFFICE MEMORANDUM
xxxxx xx xxxxxxxxx xxx xxxxxxx
xxx xxxx xxxxxxx xxxxx
xxxxxxxxxxxx, MN 5*xxxx-xxxx*

Phone: *xxx-xxx-xxxx*
Fax: *xxx-xxx-xxxx*

DATE: ***(Date of request)***

TO: **Gary Thompson**
State Construction Engineer

FROM: **(*Resident Engineer*)**

SUBJECT: **Request for Extraordinary Enforcement Funds**
S.P. *123-4567*, *TH 1* from *Illgen City* to *Finland*

With the approval of the Assistant District Engineer, I request funding for extraordinary traffic enforcement in this construction work zone. We determine that use of the Minnesota State Patrol (MSP) is necessary for the safety of construction personnel and the travelling public.

The construction work zone is approximately *X* miles long, with a posted speed limit of *XX* mph. We expect that MSP presence on the site will help reduce traffic speeds to a safe level. I am requesting *one* trooper and unit for *XX* hours a day each week during the project duration:

xx* hours @ $69.25/hour** *(as of January 2004)* **= $*x,xxx.xx

	Office	Mobile
(*Resident/Project Engineer*)	*(612) 777-7777*	*(612) 555-5555*
(*Project Inspector*)	*(612) 123-4567*	*(800) 222-3333*

cc: **Bill Servatius - MS 650**
J. Hancock - ADE
B. Harrison - Traffic
Lt. Getum - MSP
(*Others you think appropriate*)
File

SAMPLE

The procedures, standards and guidelines for work zone traffic control are contained in Part VI of the Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD), and Chapter 8 of the Traffic Engineering Manual.

Personal Injury and Motor Vehicle Accidents

Personal injury or motor vehicle accidents involving state employees or state vehicles are to be reported promptly to their supervisor. In accidents involving other vehicles, the employee and the other vehicle operator are required to exchange names, addresses, description and license number of their vehicles, and the name of the owner of each vehicle. No other information should be given unless requested by a law enforcement officer at the scene. Employees should contact their supervisor for the proper forms and procedures.

Construction Site Safety

While inspection and enforcement of safety and health regulations are the responsibility of OSHA and other organizations, by specification, Engineers and Inspectors have an obligation to see that the regulations are followed the same as other contract requirements. To fulfill safety responsibilities and to assure that insofar as possible, no employee on the project is in danger, the following actions are to be taken:

1. Engineers and Inspectors are to familiarize themselves with all safety and health regulations pertinent to the project. The Districts have been sent copies of the regulations and the periodic revisions.

2. Discuss safety at the pre-construction conference. District Safety Administrators should be used as a resource for this part of the conference.

3. Monitor contractor's operations. Where conditions of operations are observed that may be hazardous either to state or contractor employees, the Engineer will notify the contractor's representative, orally or in writing as the situation warrants, that a suspected violation of the standards exists and request that corrective action be taken. Under no conditions will a contractor be given instructions on how to correct a deficiency. If the deficiency is corrected, no further action is necessary.

4. If a contractor fails or refuses to take corrective action, the Engineer should notify the District Safety Administrator of the suspected violation. The Safety Administrator will inspect the situation. If a violation exists, the contractor should be directed by the Engineer to correct the situation. If the Contractor refuses to do so, the events and actions should be put in writing, a copy sent to the Contractor, and the District Safety Administrator should contact the proper enforcement agency for action to be taken against the Contractor.

5. If a situation is observed where continued operations are likely to result in serious injury or death to an employee (e.g. un-shored or un-sloped excavations requiring the presence of an inspector within the excavation), the Engineer will promptly order all state employees to leave the hazardous area. The Engineer will then follow the procedures in the preceding paragraph and immediately notify the Assistant District Engineer of the action taken. No employees will return to the hazardous area until an inspector of the agency responsible for the safety inspection and enforcement has inspected the area and found it safe for resumption or continuation of operations.

6. No state employee will knowingly violate or permit a person under their supervision to violate a safety or health regulation.

Reporting Fatalities on Construction Projects

The Engineer or Inspector should notify the appropriate law enforcement agencies as soon as possible when an accident involving an injury or fatality occurs on a highway construction project. The Engineer should also notify the Assistant District Engineer, District Traffic Engineer, and the District Safety Administrator.

Work Zone Traffic Control

The procedures for work zone traffic control are outlined in the Mn/DOT Field Manual, which is part of the Minnesota Manual on Uniform Traffic Control Devices for streets and highways.

In addition, Mn/DOT has an agreement with the Department of Public Safety and other law enforcement agencies to hire off-duty officers to enforce traffic regulations in construction/maintenance work zones. The Engineer should forward a memo to the State Construction Engineer requesting the use of

extraordinary enforcement in the work zone several weeks prior to the construction start date.

This memo should contain pertinent information about the project as well as an estimate of anticipated costs including labor, mileage, retirement, and any indirect costs. The Engineer should also include the local law enforcement agencies in the pre-construction conference. State Patrol timesheets should be reviewed and initialed by the Engineer.

The Engineer should report all work zone traffic accidents to the State Construction Work Zone Safety Coordinator in addition to anyone else required by District policy.

PRE-CONSTRUCTION CONFERENCE

As soon as possible after the project has been awarded, the Engineer should arrange a conference with the contractor and all other interested parties for the purpose of reviewing contract requirements, construction details, work schedules and any items peculiar to the project. Prior to this meeting the Engineer, all key Inspectors, and the Survey Chief should study the plans and become familiar with the project site to be well informed as to the requirements and existing conditions.

Participants

The following is a recommended list of attendees:

1. Project Engineer, Resident Engineer and District Staff Engineers as needed.

2. Contractor, Subcontractors, and their Superintendents and Foremen.

3. District Construction Office person.

4. Chief Inspectors and Survey personnel who have been or will be assigned to the project.

5. Engineers from the Federal Highway Administration (if project is FAP).

6. Engineers or representatives from the Mn/DOT Central Office as needed to clarify administrative or technical matters.

7. Engineers or representatives of other governmental units or agencies.

8. Representatives of any utility companies having property within or immediately adjacent to the project limits.

9. Law Enforcement or Traffic Control Officers.

10. District Safety Administrator.

Minutes of the Meeting

The Engineer is responsible for the conference agenda, conducting the discussions, and ensuring minutes of the meeting are completed and distributed to all attendees and the Contract Administration office.

Agenda

Subjects that should be addressed at the conference include the following:

1. Contractor's Operation
- a. proposed sequence
- b. potential problems
- c. required progress schedule
- d. special features
- e. coordinate operations with Utility Companies

See: Specification 1803.1 "Prosecution of Work"

2. Haul Roads
- a. identification
- b. duration

See: Specification 2051.3 "Designation and Use of Haul Roads"

3. Subcontractor(s)
- a. Request to Sublet forms
- b. work proposed for each

See: Specification 1801 "Subletting of Contract" or "Subcontracts" portion of this manual

4. Key Personnel
- a. Mn/DOT
  - (1) Project Engineer
  - (2) Chief Inspector
  - (3) Chief Surveyor
  - (4) Quality Assurance Auditor

b. Contractor
   (1) Superintendent
   (2) Authorized representatives for signatures
   (3) Certification of personnel

See: Specification 1509 "Authority and Duties of the Project Engineer"
Specification 1510 "Authority and Duties of the Inspector"
Specification 1506 "Supervision by Contractor"
"Project Authority" portion of this manual.

5. Materials

a. Company name
b. Where materials are located for inspection
c. Payment for material on-hand

See: Specification 1601 "Source of Supply and Quality"
Specification 1906 "Partial Payments"
"Payment Provisions" portion of this manual.

6. Field Office/Labs

a. Determine location of lab
b. When will lab be established and removed
c. Additional equipment

See: Specification 2031 "Field Office and Laboratory"

7. Traffic Control

a. Highlight specific traffic control issues
b. Certified traffic control supervisor
c. Use of extraordinary enforcement

See: Appendix B Minnesota Manual on Uniform Traffic Control Devices Specification 1710 "Traffic Control Devices"

8. Permits

a. Mn/DOT
   1. Use of State Waters
      (a) DNR
      (b) WCA
      (c) Corps of Engineers
      (d) Municipality
      (e) Watershed

   2. Erosion Control
      (a) MPCA

b. Contractor
   1. Use of State Waters
      (a) DNR
      (b) MPCA
      (c) Corps of Engineers
      (d) Municipality
      (e) Watershed

   2. Sewer and Water Installation
      (a) Municipality

   3. Electrical
      (a) State Board of Electricity

   4. Burning
      (a) MPCA
      (b) Municipality

See: Specification 1702 "Permits, Licenses and Taxes"

9. Labor Provisions

a. Distribute additional wage rate schedules (if needed)
b. Federal-aid project wage determination
c. Reminder of multi-county wage rates
d. Discuss borrow pits (commercial vs. dedicated)
e. Distribute posters/discuss poster boards

See: "Labor" portion of this manual

10. Equal Employment Opportunity

a. Distribute required posters
b. Form PR-1391
c. On-The-Job-Trainees
d. EEO provisions

See: "EEO" Portion of this manual

11. Cooperation with Others

a. Other contractors
b. Utility companies
c. Municipalities
d. Law enforcement
e. General public

See: Specification 1505 "Cooperation by Contractors"

12. Erosion Control

a. Permits
b. Reference key parts of erosion control plan
c. Note any special requirements based on the environmental documents

See: Specification 1803.5 "Erosion Control"

13. Safety

a. Request documentation for A Workplace Accident Injury Reduction (AWAIR) Act program, which requires a written safety and health program.
b . Review specific safety responsibilities for each of the different levels of Contractor's on-site supervisory personnel.
c. Obtain the name of the Contractor's safety director and business phone.
d. Obtain the name of the Contractor's on-site safety coordinator and position.
e. Obtain the name of the Contractor's workers compensation insurance with address, representative's name and phone number.
f. Review the Contractor's procedure for handling on-site safety related complaints or issues.
g. List when and what personal protective equipment will be required by the Contractor for employee safety and health.
h. List the Contractor's emergency response information for the specific project.

i. Identify Project specific safety measures that will be taken by the Contractor during the different phases of the project construction, including excavation protective systems, fall protection measures, backing equipment protective measures, and work zone traffic control measures.

See: Specification 1706 "Employee Health and Welfare"
Specification 1707 "Public Convenience and Safety"
Specification 1501 "Engineer Authority"
"Construction Site Safety" portion of this manual

14. Others

a. Vehicle Licensing
b. Partial Estimate Data
c. Possible Overruns
d. Waste Disposal

See: Minn. Stat. Sec. 168.09, subd. 1
Specification 1906 "Partial Payments"
Specification 1903 "Compensation for Increased or Decreased Quantities"

Regulations

All labor provisions outlined in the Contract must be followed. The Federal and State requirements, statutes and regulations are included in the Contract Proposal as a Contract specification. The Engineer has primary enforcement duties when it comes to the Contract's specifications requirements. This section will provide general information concerning the Contract labor provisions and the MN/DOT Labor Compliance Unit (LCU).

Labor regulations differ depending on when the Contract was let and whether the construction involves State and/or Federal funds.

- Any project funded in whole or part with Federal funds must conform to the Federal wages and policies determined by the U.S. Department of Labor (USDOL) conforming to the 1935 Davis Bacon Act (40 U.S.C. Section 276-1) and the 1968 Federal Aid Highway Act (Section 12).

- Any project funded in whole or part with State funds must conform to wages and policies determined by the Minnesota Department of Labor and Industry (MN/L&I) as defined by Minn. Stat. Sect 177.41 – 177.44 and Minn. Rules 5200.1000 to 5200.1120. This includes Emergency Contracts, State-Aid Contracts, Municipal Agreements, Building Contracts, etc.

Each Contract, whether State or Federally funded, must include labor provisions and State and/or Federal wage determination (Special Provisions-Division A, and/or FHWA 1273 & Federal Appendix A).

The LCU is available to assist in resolving labor issues. The Unit investigates allegations of prevailing wage violations, monitors subcontract agreements, audits Contractor's and subcontractor's payroll records, performs field reviews, processes wage complaints, monitors fringe benefit plans, and conducts training seminars. The Unit also reviews administrative policies and coordinates with other departments and agencies on labor issues.

Wage Classifications

As required by both the State prevailing wage statute and Federal Davis-Bacon and Related Acts, the commissioner of the transportation must ensure prevailing wages are paid on all projects. Both the Federal and State Departments of Labor have developed job classifications and wage rates for most work activities used on construction projects. The State and Federal process of determining prevailing wage rates are different so there may be a different wage rate for the

same classification of labor. The prevailing wages listed in the Contract proposal are the minimum hourly wages to be paid for all hours worked on the project.

If a project has both types of funding, the Contractor must meet the minimum guidelines for each law in order to be in compliance with the Contract Labor Provisions. This requires the Contractor to pay the higher of either the Federal or State classification wage rates. In addition, the State law requires that overtime must be paid at one and one half times the hourly basic rate paid to the labor and mechanic for all hours worked in excess of the prevailing hours of labor. The prevailing hours of labor are eight hours per day and forty hours per week. The hourly basic rate is the hourly wage paid to any employee. The Federal law requires that the overtime paid to the labor or mechanic for work performed after 40 per week be paid at a rate of one and one half times the basic rate plus the remaining fringe rate. The Secretary of Labor's classification base rate is the minimum rate for the Federal overtime calculations.

If a dispute arises concerning the appropriate classification of labor, the Engineer may need to consult MN/DOT District personnel, LCU, MN/L&I, or USDOL for advice to help determine the most similar classification.

- On projects funded in whole or part with State funds, the laborer or mechanic must be paid the rate applicable to the most similar trade or occupation for the work performed on the project. The commissioner of MN/L&I has determined all similar trades and occupations. These classifications of labor have been promulgated by rule and are listed in the Master Job Classification list (Minn. Rule 5200.1100). This list is published in the State Wage Determination contained in the Contract.

- For a Federal-aid project, the secretary of Labor has issued a General Wage Determination that must be included in the Contract. If a laborer or mechanic of the Contractor or subcontractor is performing a work activity that does not correspond to a job classification contained in the Contract's Federal General Decision, a wage rate must be negotiated with the Contractor and a conformance form, *Request for Authorization of Additional Classification and Rate* (1444.101 form), must be completed and signed by the Contractor, signed by affected subcontractor(s) and/or employee representative, signed by the Engineer, and submitted to the LCU to process to the USDOL.

If the Contract contains two or more State Regional Highway & Heavy Wage Determinations the highest classification wage rate between the determinations shall govern. If the Contract contains two or more Federal General Wage

Decisions, the rate established by the USDOL for each area is the Federal rate that applies to that area. Federal rates do not cross county or State lines. It shall be the Contractor's responsibility to determine the proper wage rates to be paid for each class of work on the Contract.

The Contractor is responsible for assuring their payroll records and their subcontractor's payroll records accurately reflect the proper hours worked, rate of pay, and classification of work performed, of all laborers and mechanics working on the project.

The prevailing wage rate does not apply to indentured apprentice workers, provided the workers are registered with the Mn/L&I, Apprenticeship Division or the Federal Bureau of Apprenticeship. These are the only two agencies apprenticeship programs that MN/DOT recognizes for purposes prevailing wage enforcement. The ratio of apprentice to journeyman level employees on the project job site must not be greater than the ratio permitted for the Contractor's entire workforce under the registered program. In addition, trainees approved through the MN/DOT, EEO, Contract Management Division, working on Federal-aid Contracts are required to be paid at percentages established by the EEO office. The designation "Trainee" is specific to the person and to the Federal-aid Contract.

The application of the State and Federal prevailing wages laws may vary from year to year. The Courts, the State and Federal Departments of Labor are continually making rulings, which may affect coverage under the law. The Engineer must review the "Prevailing Wage Statements" and Special Provisions – Division A portion of the Contract proposal for further information on coverage of prevailing wages laws. The Engineer should attend the LCU bi-annual seminars and contact the LCU for help in determining prevailing wage coverage for truckers, borrow pits, off-site facilities, commercial establishments, or other coverage related issues.

Requirements and Compliance

The Contractor is obligated by the Contract and labor laws to comply with the labor provisions of the Contract. As with all specifications of the Contract, the Engineer is responsible to ensure the Contractor fully complies with Contract Labor Provision. The following sections explain the responsibility of the Engineer/Resident Office Personnel/Consultants, Contractor, and the LCU to ensure all labor provisions are met:

A. Engineer/Project Personnel/Resident Office Personnel/Consultants

1. General

a. Cover the following at the pre-construction conference:

(1) Notify all Contractors of State and Federal prevailing wage schedules; pass out schedules if needed.
(2) Discuss whether additional classification wage determinations are needed (Federal-aid projects only).
(3) If the project is funded by State and Federal funds and/or is in multiple counties, work with the Contractor to determine the highest wage rate for each classification of labor.
(4) Gather information regarding any off-site facilities that provides materials to the project (borrow pits, batch plants, etc.) to help determine if they are commercial establishments or dedicated to the project (Minn. Stat. 177.44 subd. 2 and Minn. Rule 5200.1106).
(5) Inform the Contractor that legible poster boards must be up on the first day of work and must be in a conspicuous location on the project worksite. It is unacceptable to erect the poster board at an off-site facility.
(6) Send a copy of the pre-construction notes to the LCU.

b. Ensure the Inspector's daily diary contains the following information:

(1) All companies working on the project.
(2) Number of employees working for each company.
(3) Hours worked or start/stop times.
(4) Types of equipment
(5) Type of work performed

c. Inspect the Poster Board

(1) Proper posters with proper project information listed.
(2) All wage determinations' pages are visible and legible (not in book form)
(3) In a conspicuous location on the project work site.

(4) Posted and legible from project start until completion of all project work.

d. **The Engineer must ensure employee confidentiality when dealing with all labor complaints unless the employee has given permission to use her/his name.**

2. Labor Provisions

a. Review the Contract labor provisions closely.
b. Provide additional copies of labor provisions as requested by the Contractor or subcontractor.
c. Ensure each subcontractor agreement has provisions that require the subcontractor to adhere to all contract provisions contained in the original Contract.

3. Wage Classifications

a. Ensure additional wage classifications are conformed for Federal-aid projects.
b. Ensure compliance with the Contract's Labor Provisions by randomly interviewing employees throughout the month and including the required information on MN/DOT's monthly form *Field Compliance Review on Labor Provisions*.
c. Address all wage complaints or discrepancies found during the monthly field compliance review. **Ensure employee confidentiality is maintained unless the employee gives permission to use her/his name.**
d. Inspectors should fill out the form, not the employees.
e. Contact the LCU for assistance.

4. Payroll

a. Projects with only State funds: The certified payrolls are required to be submitted based on the individual contractor's payment program. If the contractor pays their employees on weekly basis the payrolls must be submitted on a weekly basis. If the contractor pays biweekly then the payrolls are required to be submitted on a biweekly basis. No employer can pay less often then once every 30 days.

b. Project Funded with Federal Funds: All contractors must submit their certified payrolls on weekly basis.

c. Standard Payroll Submission: The subcontractors are required to complete and sign a MN/DOT 21658 form and submit the form along with their payroll information to the Contractor. The Contractor is required to complete their own certified payrolls attaching a completed and signed 21658 form. The Contractor is then required to submit all certified payrolls to the Engineer within seven days from the Saturday of the workweek ending date based on the funding information in items a & b above. The Engineer must fully review the first two payrolls for each contractor followed by a random review of additional payrolls.

d. Contractor Payroll Maintenance Program (Program): The Program was developed to meet the Federal Paper Reduction Act but was not intended to eliminate the legal requirements for submitting certified payrolls. The Program must be first approved for use by the LCU and the language incorporating the Program into the Contract must be inserted into the Contract's Special Provisions Division A or in the Federal - Appendix A. The Contractor and Engineer must then agree on the application of the Program following the requirements of the Program. The Program requires the subcontractors to complete and sign a MN/DOT 21658(A) form and attach the form to their payroll information. The certified payrolls must be submitted based on the funding information in items a & b above. The Contractor is required to complete their certified payrolls attaching a completed and signed 21658(A) form. The Contractor is then required to make copies of the two-sided 21658(A) form and submit the copies to the Engineer. The Engineer then records the 21658(A) form into the payroll tracking and review system. The Engineer is then required to call for two payrolls for each contractor on the project for each year the Contract is in progress. The Contractor has three days to mail the payrolls. It is recommend for new contractors that the first payroll report be called for as soon as possible to ensure they understand what is required under the Contract Labor Provisions. It is recommended that the required second payroll report be called for by the Engineer based on the information gathered on site and recorded in the Daily Diaries and the Inspector's Field Compliance Review. The Engineer should base their request for the required two payroll reports from experience contractors on this same information. If problems are

discovered after a review of the two payrolls, additional payrolls must be requested until all problems are resolved.

e. All certified payrolls must be maintained, at both the Engineer's and Contractor's offices, for a period of 3 years from the fiscal year ending date (June 30) of the Contract final.
f. Daily Diaries and Inspector's form *Field Compliance Review on Labor Provisions* should be compared to the payroll for; contractors working on the project, names of contractor employees working on project, types of classifications used on the project, number of personnel on the project, fringe benefit information, pieces of equipment, daily and weekly hours reported, and any notable complaints either observed or received by the Inspectors.
g. Ensure all payroll information is filled out properly. If incorrect, send a copy of the payrolls to the Contractor with an explanation of the corrections required.
h. Ensure form 21658 or 21658(A) is correctly completed and attached to the payroll. If the Contractor uses a computer generate form, ensure the form contains all language on MN/DOT's 21658 forms. Submit a copy of the computer-generated form to the LCU.
i. All apprentices must be registered with either the Minnesota Department of Labor and Industry or the U.S. Department of Labor. All trainees must be pre-approved by the MN/DOT EEO Contract Management Division and kept in the project file. Any non-qualifying apprentices or trainees must be paid prevailing wages. The apprentice registration numbers should accompany the payrolls for verification purposes. Companies with apprentices must follow the approved apprentice to journeyman ratio levels established by the approving agency.
j. Compare the fringe benefit information listed on the 21658 forms to the information collected on the Inspector's monthly form *Field Review on Labor Provisions*. Special attention should be given to employees who claim not to be receiving fringe benefits. The Federal law requires that the employee be notified in writing of the fringe benefits they are receiving from the contractor. All discrepancies should be reported to the LCU.
k. The Engineer may withhold partial payments until all payroll requirements are met, including timely submission; labor disputes Poster Board disputes and underpayments.
l. If the Engineer or inspector is having problems in achieving compliance with the Contract Labor Provisions, they should

contact the LCU for additional information to resolve the problems or to ask for an official investigation of the problem Contractor.

B. Contractor

1. General

a. Poster boards should be placed on the project work site where all workers have access from the first day of work until the project is completed. All the information must be accurate, accessible, legible, and protected from the weather. Post the following on a poster board:

(1) Project funded in whole or part with State Funds:
  (a) Contract State Wage Determination(s)
  (b) MN/DOT's "Notice to Workers" Poster
(2) Project funded in whole or part with Federal funds:
  (a) Contract Federal General Wage Determination(s)
  (b) Federal "Wage Rate Information" poster
  (c) Federal "Fraud" Poster
(3) All Projects
  (a) All EEO Posters (contact the EEO office for information)
  (b) All Safety posters (contact OSHA or the LCU)
  (c) State Workers Compensation poster.

b. Labor & EEO posters should be obtained from the Engineer at the pre-construction conference or can be obtained from the LCU.

2. Labor Provisions

a. Review the labor provisions closely.
b. Keep a copy of the labor provisions on file at the job headquarters.
c. Ensure that all written subcontract agreements and purchase orders include references to the Contract Labor Provisions, and that the subcontractors, independent contractors, trucking firms or agents of are complying with those provisions.

3. Wage Classifications

a. Determine the proper State or Federal wage classification and the proper prevailing wage (higher of the State or Federal wage).

b. On Federal-aid projects, determine if the Contract's Federal General Decision is missing classifications of labor will be used on the project. All workers on the project are required to have a Federal wage rate. If additional classifications are required, the Contractor must conform a wage rate to the classification rates contained in the Contract's Federal General Decision and submit the classification and rate to the Engineer on the required Federal form *Request for Additional Classification and Rate* (1444-101).
c. For purposes of complying with the State prevailing wage law, all employee's work duties must be conformed to the State's Master Job Classification List (Rules 5200.1100).
d. Apprentices must be registered and approved prior to working on the project.
e. Trainee must be approved by the MN/DOT's EEO, Contract Management Division, prior to working on the project.
f. Fringe benefits or cash equivalents must be identified on MN/DOT form 21658 or 21658(A).

4. Payroll

a. The payroll must contain the following:

(2) Contractor name, address, and phone number.
(3) Payroll report number.
(4) State Project Number.
(5) Workweek ending date.
(6) Project Location.
(7) Name, social security number, and home address of each employee on the first payroll that the employee's name appears.
(8) Labor classification and code for each employee.
(9) Hourly straight time and overtime rates paid.
(10) Daily and weekly hours worked in each classification including the actual overtime hours worked.
(11) Net wages paid.
(12) Authorized deductions such as State and Federal income taxes, social security taxes, repayment of bona fide loans, court ordered garnishments, contributions, medical premiums, union fees, and U.S. savings bond purchases.

b . The MN/DOT form 21658 or 21658(A) *Statement of Compliance* must be accurately and truthfully completed, signed and attached to the payroll form or the payroll will not meet the Contract's "Certified Payroll" requirements.
c. Preserve all payroll records for 3 years past the fiscal year date (July) of the project completion.

C. Labor Compliance Unit

1. General

a. Ensure Contracts are administered according to State and Federal Regulations.
b. Help resolve labor complaints/labor disputes.
c. Perform contractor reviews.
d. Provide training seminars.
e. Work with other departments, agencies and District/Resident offices to resolve labor issues.

2. Labor Provisions

a. Audit Contracts to determine if labor provisions are in place.
b. Assist the contractor personnel, Engineer, and project personnel to understand the application of the Contract labor provisions.

3. Wage Classifications

a. Work with other agencies to define the work performed by individual classifications of labor, develop additional classifications, and to define the application of the State and Federal laws.
b. Provide assistance to Engineers in determining proper classification of labor for the work performed by contractor employees.
c. Perform field reviews to ensure proper classifications and wage standards are met.
d. Review fringe benefit plans and perform fringe benefit reviews.
e. Resolve wage complaints and labor disputes.

4. Payroll

a. Audit payrolls.
b. Audit the Contractor and Engineer for compliance with the *Contractor Payroll Maintenance Program*.

I. GENERAL POLICY

The Office of Equal Employment Opportunity / Contract Management (EEO/CM) implements external policies concerning equal employment opportunity (EEO) and equal access to contracting opportunity. EEO/CM assists people of color, women and other protected class persons to participate as full and equal partners in Mn/DOT's planning, construction and management of the Minnesota transportation system. This includes insuring equal opportunity both in access to contracting for Disadvantaged Business Enterprises (DBEs) on Federally assisted contracts and insuring access to the opportunity for employment with contractors performing on Mn/DOT construction projects. EEO/CM monitors and reviews the application of both Federal and State laws and rules concerning EEO and the DBE Programs.

Internally, EEO/CM provides initial review and resolution of Mn/DOT employee issues involving possible violations of Mn/DOT's discrimination, harassment, and appropriate workplace behavior policies.

EEO/CM also provides consultation and oversight concerning the application of Title VI, a Federal requirement for affirmative action, to Mn/DOT programs, activities, services and benefits. Full implementation of Title VI at Mn/DOT is a precondition to receipt of Federal transportation funding. EEO/CM staffs the position of Title VI Coordinator, and devotes resources to providing guidance on Title VI throughout Mn/DOT

II. INTERNAL EQUAL OPPORTUNITY – EMPLOYMENT

EEO/CM provides initial review of Mn/DOT employee concerns about unequal treatment based on protected class status, which may be identified by EEO/CM during a construction project review. Concerns are heard, evaluated, and resolution is attempted. If resolution is not obtained, concerns are referred to the appropriate office at Mn/DOT or the employees are referred to outside agencies.

EEO/CM maintains a strong presence on Mn/DOT's Diversity Committee, and devotes significant resources to diversity events and diversity training.

III. INTERNAL EQUAL OPORTUNITY – TITLE VI

Title VI is a broad Federal requirement based on the Civil Rights Act of 1964, as amended. It requires that all Mn/DOT programs, activities, services and benefits

take place without discrimination based on protected class status and with affirmative action for inclusiveness of all elements of Minnesota's population. Mn/DOT is required to implement Title VI in order to receive Federal funds; failure to implement Title VI may result in a loss of all Federal funding.

EEO/CM staffs the position of Title VI Coordinator, as required by FHWA regulations. EEO/CM files the annual Assurance with U.S.DOT/FHWA, concerning the application of Title VI throughout Mn/DOT, and is responsible for documentation, training and annual reports about Title VI. The Title VI Coordinator is required to have direct access to Commissioner level staff.

IV. EXTERNAL EQUAL OPPORTUNITY – CONTRACTING

A. Federal Program and Laws

U.S. DOT/Federal Highway Administration (FHWA) regulations include participation percentage goals on Federally assisted contracts for the use of Disadvantaged Business Enterprises (DBEs), which are businesses owned by socially and economically disadvantaged persons. In addition, it is Mn/DOT's policy to maximize opportunities for participation by DBEs. DBE participation goals apply to federally funded highway construction projects, consultant contracts and other types of business opportunities with Mn/DOT. The regulations for the DBE Program are contained in the U.S. Code of Federal Regulations (CFR) at 49 CFR Part 26. Mn/DOT updates the aspirational DBE goal for federally assisted contracts each year. For the Federal Fiscal Year (FFY) 2005, Mn/DOT's goal is **6.7%** participation by DBEs.

Pursuant to the federal DBE regulations, EEO/CM is part of the Minnesota Unified Certification Program (Mn/UCP), which provides a "one-stop" certification process. As part of the Mn/UCP, Mn/DOT's EEO/CM, along with the Metropolitan Council (Met Council) and the Metropolitan Airports Commission (MAC), follows U.S.DOT approved procedures to certify businesses that meet the certification requirements of the DBE Program. On behalf of the Mn/UCP, EEO/CM publishes the firms in a DBE Directory available to the general public on Mn/DOT's Website.

EEO/CM sets DBE participation goals for individual highway construction projects and consultant contracts, and monitors DBEs and other contractors for compliance with the DBE Program. EEO/CM provides support services to DBEs to improve their understanding of the construction industry, enhance their business capacity and capability, and assist them in participating in construction and consultant contracting. EEO/CM reports the dollar value of DBE

participation to FHWA. If Mn/DOT's participation in the DBE Program does not fully meet FHWA requirements, the Federal government may bring sanctions against Mn/DOT, including denial of future transportation funding.

B. State Program and Laws

Minnesota Statutes 16B, 161.321, 162.02 and Minnesota Rules chapter 1230 contain regulations for the Targeted Group Business (TGB) program. These rules call for maximizing opportunities for TGB certified firms on State-only funded projects. The Minnesota Department of Administration certifies women and minority owned businesses as TGBs. At the present time, Mn/DOT does not apply TGB goals on state funded contracts.

C. DBE Special Provisions

The requirements for the DBE Program on Federally assisted contracts are contained in Mn/DOT contracts in the DBE Special Provisions. EEO/CM has developed separate DBE Special Provisions for construction and consulting contracts with DBE participation goals as well as DBE Special Provisions for contracts with Race/Gender Neutral goals.

D. Staff Assignment

Each application for certification as a DBE is assigned to a Transportation Program Specialist III/DBE Specialist (TPS/DBE) for investigation and consideration for admission to the DBE Program. In addition, each contract with numerical DBE goals and Race/Gender Neutral goals is assigned to a TPS/DBE. Questions about the DBE Program or individual projects with DBE requirements may be directed to the TPS/DBE staff.

V. EXTERNAL EQUAL OPPORTUNITY – EMPLOYMENT

EEO/CM implements mandated employment programs on Federal and State funded construction projects, On-The-Job Training (OJT) employment programs on Federally- funded construction projects, and cooperates in Tribal Employment Rights Ordinance (TERO) implementation on construction projects on Tribal reservations. Federal regulations and laws require contractors to provide equal access to construction employment and to maintain a construction work environment free from discrimination based on protected class status. In addition, it is Mn/DOT policy that contractors and subcontractors maximize opportunities for employment of minorities and women and other protected class persons on Mn/DOT construction projects. Mn/DOT policy also requires

appropriate workplace behavior (non-discrimination, non-harassment, and non-violence) on Mn/DOT construction projects.

A. Federal EEO Programs and Laws

Numerous Federal laws and policies require equal employment practices by contractors working on federally funded projects. EEO/CM has the responsibility for implementing certain FHWA Federal regulations in Mn/DOT's construction and other contracting, and in Mn/DOT internally. FHWA regulations (in the Code of Federal Regulations at 23 CFR Part 200, Part 230, Part 630, and Part 633) contain equal employment requirements pertaining to contractors and subcontractors on FHWA highway construction projects. The regulations cover a broad range of contractor employment practices and procedures, and require a strong good faith effort to offer meaningful employment opportunity to women and minority applicants. EEO/CM is required to monitor and review all Federally assisted highway construction projects under the FHWA regulations. EEO/CM maintains project employment data to identify the percentage of overall work in each trade on each project that is performed by protected class employees.

In addition, EEO/CM implements Title VI of the Civil Rights Act of 1964, as amended, prohibiting discrimination on the basis of race, color, national origin or sex in programs or activities receiving Federal financial assistance, and covering both external and internal application to Mn/DOT. EEO/CM maintains the position of Title VI Coordinator, as required under Federal rules, to coordinate and implement Mn/DOT's Title VI Program.

Certain Federal laws apply to contractors as private employers, including Title VII of the Civil Rights Act of 1964, as amended, which prohibits discrimination in hiring, promotion, discharge, pay, fringe benefits, job training, classifications, referral, and other aspects of employment, on the basis of race, color, religion, sex or national origin; the Americans with Disabilities Act of 1990, as amended, which protects qualified applicants and employees with disabilities from discrimination in hiring, promotion, discharge, pay, job training, fringe benefits, classifications, referral, and other aspects of employment on the basis of disability; the Age Discrimination Act of 1967, as amended, which protects applicants and employees 40 years of age and older from discrimination on the basis of age in hiring, promotion, discharge, compensation, terms, conditions or privileges of employment; the Equal Pay Act of 1963 which prohibits sex discrimination in payment of wages to women and men performing substantially equal work in the same establishment.

Since contractors are required to maintain work environments free from illegal discrimination, discrimination under any of these laws may have a negative impact on a contractor's eligibility to participate in federally-assisted contracting.

1. Construction Employment Program

EEO/CM monitors construction projects for compliance with Federal and State EEO programs; performs spot-checks and in-depth reviews on selected projects to verify compliance; creates and institutes corrective action plans to achieve compliance; and may, when non-compliance is found to be uncorrected, request or institute sanctions against contractors. Individual complaints about unequal treatment in construction employment are evaluated, and either resolved or referred to the Minnesota Department of Human Rights or the Equal Employment Opportunities Commission for resolution.

2. On-the-Job Training - Standard Program

EEO/CM is required to review all federally-assisted highway construction projects and select those suitable for providing training opportunities. Appropriate projects are assigned a specific number of On-The-Job Trainees as part of a contractor's affirmative action program with the objective of upgrading members of minority groups and women and providing trained journey-workers in the trades. Proposals/contracts for the selected projects contain special On-The-Job Training provisions and a bidding line item for Training. The prime contractor must submit a training proposal in writing to the Mn/DOT Project Engineer at the pre-construction conference outlining the Training Program to be used and the number of trainees to be trained. The Project Engineer sends a copy of the Training Program to the EEO/CM Transportation Program Specialist III/Contract Compliance Specialist (TPS/CCS).

Trainees under approved programs are paid at least the percentages of the journey-worker's rate provided in the contract or other reduced rates included in the approved program. Unless otherwise provided in the approved program, the rate used to determine the trainees' minimum salary will be a percentage of the base rate for a journey-worker.

The contractor is reimbursed for each hour of training at the rate specified in the contract line item provided that all of the requirements of the training provisions in the contract are met.

3. On-The-Job Training - Roads Opportunities & Diversity Success (ROADS)

EEO/CM is implementing a pilot OJT support services program (FFY 2005) designed to increase the number of women and minorities in the construction trades while addressing industry concerns for increased flexibility in the program. The new OJT program, called the Roads Opportunities and Diversity Success program, will coexist with the standard OJT program during its testing phase. Positive results during the testing phase will support replacing the entire standard OJT program with the ROADS program.

The ROADS program allows contractors to identify themselves as participants early in the construction season each year, agreeing to employ a specific number of Trainees in their highway construction work throughout the season. Trainee identification and orientation to the construction industry will be performed by an approved group of community-based organizations in consultation with EEO/CM. Trainee work hours will be tracked on all projects on which Trainees work; reimbursement will occur from the projects on which they work with standard OJT program assignments. FHWA approval of the ROADS program has been granted and implementation will begin in early spring of 2005. It is expected that the ROADS program will be tested during the 2005 construction season.

4. T.E.R.O. and Indian Preference Programs

Section 1026(c) of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), which remains unchanged in TEA - 21 Legislation, recognizes and permits the preferential employment of Indians living on or near a reservation on projects and contracts funded with ISTEA monies that take place on or near Indian Reservations. It is Mn/DOT's policy to encourage employment of minorities and more specifically, as it relates to Section 1026(c) of ISTEA, American Indians. It is the policy of Mn/DOT to cooperate with the 11 tribal governments to allow for the preferential employment of American Indians on projects on or near Indian Reservations. Tribal governments may request inclusion of Indian Employment Preference on any project. EEO/CM will review each request on a project-by-project basis. Language concerning TERO or Indian Employment Preference requirements must be approved by EEO/CM prior to inclusion in Mn/DOT contracts (including delegated authority projects that are administered by individual cities and counties).

B. State EEO Programs and Laws

Minnesota law requires that a project in excess of $100,000, funded in whole or in part by State funds, must comply with the Minnesota Human Rights Act (MHRA – Minn. Stat. §§ 363A.01 *et.seq.*) which prohibits job discrimination against applicants or employees on the basis of race, color, creed, religion,

national origin, sex, marital status, status with regard to public assistance, disability, sexual orientation or age. The Minnesota Human Rights Act requires a Certificate of Compliance for any business with more than 40 full-time employees on a single working day during the previous 12 months, which bids on or executes a state contract for goods or services in excess of $100,000. Certificates of Compliance are issued to businesses which have an Affirmative Action Plan approved by the Commissioner of the Minnesota Department of Human Rights (MDHR) for the employment of minorities, women, and disabled individuals. Rules governing Certificates of Compliance are found at Minnesota Rules 5000.3400-3600.

Minnesota Rules give the Commissioner of Human Rights the authority to set employment goals for minorities and women on State funded construction projects. The current applicable percentages of minority and women employment, computed as percentages of the total hours of employment, are contained in each Mn/DOT proposal/contract in the EEO Special Provisions, and are based on the geographic location of the project. EEO/CM maintains project employment data to identify the percentage of overall work in each trade on each project that is performed by protected class employees.

EEO/CM monitors construction projects for compliance with Minnesota requirements. Findings of noncompliance may be referred to the Minnesota Department of Human Rights for resolution. Available sanctions include revocation of a contractor's Certificate of Compliance.

C. EEO Special Provisions

The requirements for equal employment are contained in Mn/DOT contracts in the EEO Special Provisions, and are currently dated 11/01 in upper right corner (EEO Page 1-23 for County/Municipal State-Aid (CSA/MSA) Projects or EEO Page 1-37 for State Aid or Federal Aid projects). If OJT is required, OJT provisions are located in Division S of the proposal, under Item Number (0041) "On The Job Training Program", and in the schedule of prices under Pay Item 0041.606 "Trainees", which contains the contract bid price.

C. Staff Assignment

Based on project location, each project is assigned to a Transportation Program Specialist/Contract Compliance Specialist (TPS/CCS) for employment review. Questions about the employment programs may be directed to the TPS/CCS staff.

D. Other Agencies

Other agencies also maintain oversight of EEO application to construction projects. EEO/CM is required to share information with other agencies, may be required to report violations to other agencies, and voluntarily coordinates EEO activities with other agencies to reduce the burden on the construction industry.

The Office of Federal Contract Compliance Programs (OFCCP) monitors the following programs: Executive Order 11246 prohibits employment discrimination against applicants or employees of contractors or subcontractors on the basis of race, color, religion, sex or national origin, for all projects exceeding $10,000, funded in whole or in part by Federal funds, and requires affirmative action to ensure equality of opportunity in all aspects of employment. Section 503 of the Rehabilitation Act of 1973, as amended, prohibits job discrimination because of handicap and requires affirmative action to employ and advance in employment-qualified individuals with handicaps who, with reasonable accommodation, can perform the essential functions of a job. The Vietnam Era Veterans Readjustment Assistance Act of 1974 (38 U.S.C. 4212) prohibits job discrimination and requires affirmative action to employ and advance in employment qualified Vietnam Era veterans and qualified special disabled veterans. EEO/CM is required to notify OFCCP when violations of these programs are observed on Federally assisted highway construction projects.

The OFCCP also applies Federal goals for the employment of minorities and women on highway construction projects based on the geographic location of the project. Current applicable percentages are contained in each Mn/DOT contract in the EEO Special Provisions. EEO/CM is required to notify OFCCP when violations of these laws are observed on Mn/DOT projects.

VI. COMPLIANCE

A. General Program Compliance

All parties responsible for preparing contracts utilizing State of Minnesota and/or FHWA funds must insure that appropriate equal opportunity in contracting and employment contract language is included. Each contract requires that all regulations regarding equal opportunity in employment and contracting be properly followed. Design-build projects, joint partnerships, lump sum contracts, and other forms of contracting are subject to the same requirements.

The employment goals (on all projects), and DBE/OJT Programs (on selected projects) are contract specifications, and must be adhered to in the same manner as other contract specifications. The contractor expects a working knowledge of the regulations referenced in the contract proposal of state personnel involved with assuring compliance, particularly to enable identification of violations. (Examples of possible violations include, but are not limited to moving protected class employees from site to site to meet employment goals, i.e. not for a legitimate business reason; using prime or other contractor's equipment or employees to do DBE subcontracted work; fraudulently obtaining DBE certification; allowing DBE contractors to perform work outside their areas of certification; instances or allegations of discrimination, harassment, violence between contractor employees, among different contractor employees, or involving Mn/DOT employees.) Possible or suspected violations, including anonymous complaints, must be brought to the attention of EEO/CM. EEO/CM will provide training concerning the DBE and equal opportunity requirements upon request. In addition, EEO/CM provides training during the District Updates on an annual basis to Mn/DOT District staff and Local Public Agencies (participating in the Delegated Contracting Process, DCP).

B. Specific Program Compliance- EEO/CM Responsibility

Before advertisement of projects, all projects must be evaluated by EEO/CM to determine DBE participation goals and whether Trainees are required. Those individuals preparing contracts must submit contract information in a timely fashion to obtain EEO/CM input before advertisement deadlines.

After letting but before award, all projects identified as having a DBE participation goal must be cleared by EEO/CM. Close coordination between contractors and EEO/CM is necessary to make timely awards.

During construction, EEO/CM performs FHWA required project reviews to determine the level of compliance with EEO regulations by contractors. These scheduled in-depth reviews include on-site interviews with employees, extensive review of Prime contractor employment practices, and detailed review of employment statistics (both project based and company-wide). These reviews occur with notice to the Prime Contractor and the Project Engineer, and follow FHWA and Minnesota Department of Human Rights (MDHR) regulations and policies. Mn/DOT staff is not required to participate in these reviews, although they may be asked for information about the project. The Project Engineer receives a copy of the Notification of Review letter and the final review report. Sanctions may be brought against contractors who are in noncompliance with FHWA's or MDHR's EEO regulations.

EEO/CM reports to the Minnesota Department of Human Rights (MDHR) concerning the results of the formal reviews. MDHR has the authority to suspend the Certificate of Compliance of a contractor who is in noncompliance with the State EEO laws and regulations.

EEO/CM also performs spot checks on projects, including site-visits, informal interviews with project staff, and general review of EEO progress. These spot-checks are less formal than the FHWA reviews, and are performed without notice.

EEO/CM investigates concerns raised by employees on project sites, contractors, third parties, and anonymous complaints concerning DBE program operation and allegations of discrimination, harassment, or violence on project sites. Complaints involving Mn/DOT personnel are referred within Mn/DOT. Cases involving non-Mn/DOT personnel are reviewed and resolution is attempted. If resolution is not obtained, parties are referred to the Minnesota Department of Human Rights, the Equal Employment Opportunities Commission (EEOC) or to private counsel for filing formal complaints. Contractors may be sanctioned for work environments that do not meet the required standards of DBE participation, On-The-Job Training program operation and worksite non-discrimination, non-harassment, and nonviolence.

C. Specific Program Compliance- Project Engineer Responsibility

The following is a summary of compliance efforts required of Project Engineers.

1. Sends notice of pre-construction meeting to the attention of the Office of EEO/CM.
2. Identifies EEO/CM staff (both TPS/DBE and TPS/CCS) to the contractors if EEO/CM staff is unable to attend Pre-construction meeting.

    a. Reviews the general purpose of the EEO Program (to maximize employment of minorities and women on highway construction sites, and provide access to contracting opportunities to minority and women owned businesses).

    b. Reviews the numerical employment goals for minorities and women, (Federal and State, as applicable) assigned to project. If a project covers more than one geographical goal area, the highest goal prevails on entire project.

c. Informs about poster display. Information pertaining to non-discrimination must be displayed on construction projects from the first day any work is performed until all work has been completed. The posters must be displayed in a prominent place where the employees gather, in a manner that will permit all interested persons to read all the information without difficulty. Large construction sites may require more than one display. The Engineer usually furnishes Federal and Mn/DOT posters to the prime contractor. The prime contractor is responsible for the posting. The following posters are required by EEO/CM (note that other offices/ agencies/regulations require other posters):

"NOTICE OF NONDISCRIMINATION IN EMPLOYMENT" poster, Mn/DOT Central Stores, TP-017244. The contractor or Project Engineer must fill in the company name, EEO Officer's name, address and telephone numbers; and the

"Equal Employment Opportunity is THE LAW" poster, EEOC-P/E-1, available from the EEOC. *"CONTRACTOR NON-DISCRIMINATION…is the law"* poster, supplied directly to the contractor by the Minnesota Department of Human Rights when issuing a Certificate of Compliance. Posters many be obtained from Contract Compliance Unit, Minnesota Department of Human Rights, Army Corps of Engineers Centre, 190 E. 5th Street-Suite 700, St. Paul, MN 55101, (651) 296-5663 or 1-800-657-3704. A list of additional required posters, some of which are available for reproduction from Web sites, is available from EEO/CM.

d. If OJT positions have been assigned to the project, receives the Training Plan from the prime at the pre-construction meeting or arranges for submission shortly thereafter, and forwards a copy to TPS/CCS for approval. TPS/CCS sends a copy of approval letter to Engineer. The Engineer may be asked to assist TPS/CCS with questions about appropriate number of trainees, trainee performance, trainee/safety issues, etc.

e. If the DBE Program applies, identifies the TPS/DBE Specialist assigned to project and reviews DBE requirements: that work must be done by the selected DBE, with its own employees and equipment; that any changes must be discussed with and approved by the Office of EEO/CM through the TPS/DBE Specialist before

being made or liquidated damages may be assessed at conclusion of project; that Engineer will review each DBE at mid-completion and report to TPS/DBE using Exhibit A form; that any problems with performance of DBE Program will be reported to TPS/DBE immediately.

3. Sends a copy of the pre-construction meeting notes to assigned TPS/CCS.

4. Receives, reviews and forwards copies of Monthly Employment Compliance Reports (EEO 13) to designated TPS/CCS. Verifies that the prime and all subcontractors working in a given month have submitted their EEO 13s. Notifies TPS/CCS of difficulty in getting forms submitted, with questions/suggestions about the forms, to request training or to recommend training for a contractor or to report observations that reported numbers of minorities and women do not match observations at the site.

5. Reports any complaints about or observations of race or sex discrimination or harassment occurring on a project to TPS/CCS immediately. Asks complainant to put complaint in writing. Investigates any allegation of discrimination or harassment promptly. Keeps written notes of all details of such allegations.

6. Relays any complaints/questions from the public about numbers of protected class employees on the site or other EEO issues to the TPS/CCS.

7. Assists TPS/CCS with on-site reviews (locating site, identifying foremen or supervisors, understanding any special safety concerns or special problems on the project, etc.). Engineers and Inspectors may be asked to put observations about EEO problems on projects in writing.

8. Refers contractors with EEO questions or problems which the Engineer cannot resolve or who are not meeting their employment goals to TPS/CCS.

9. Reviews and makes appropriate payments if OJT positions are assigned to project. Once the TPS/CCS has approved the Training Plan, the contractor selects trainees and notifies TPS/CCS on the ON THE JOB TRAINING PROGRAM-OJT ASSIGNMENT FORM. TPS/CCS notifies Engineer of selected trainees, and thereafter

contractor submits an original and one copy of "CERTIFICATION OF ON-THE-JOB TRAINING HOURS: FEDERAL-AID PROJECTS" to the Engineer. Engineer forwards copy to TPS/CCS.

10. Reviews, if the DBE Program applies to a project, each DBE at a mid-performance point, sending Exhibit A report form to the TPS/DBE Specialist. Reports any performance problems to the TPS/DBE Specialist. Any changes from the DBE plan must be pre-approved by Director through the TPS/DBE Specialist or liquidated damages may be assessed at conclusion of project. Notifies the TPS/DBE Specialist of any observations or information, including anonymous complaints, that a DBE is not eligible for the DBE Program.

11. Reviews project sites for poster display.

12. Withholds funds or implements other sanctions when notified by EEO/CM.

VII. REPORTS

A. Annual Federal Highway Administration (FHWA) Report

EEO/CM will issue a memorandum each May/June, detailing the requirements for the annual FHWA report. The contractor is required to submit to the Project Engineer, in triplicate, form PR-1391, "FEDERAL AID HIGHWAY CONSTRUCTION CONTRACTORS EQUAL EMPLOYMENT OPPORTUNITY REPORT," to cover the last payroll period worked in July on each project. The Engineer will retain the original in the project files, and forward the other copies to the district office or district state-aid office where the reports will be accumulated and summarized.

The district office will summarize the data contained in the forms PR-1391 forwarded by the engineers onto form PR-1392, "SUMMARY OF EMPLOYMENT DATA INCLUDING MINORITY BREAKDOWN FOR ALL FEDERAL AID HIGHWAY PROJECTS FOR ALL OR PART OF THE LAST PAYROLL PERIOD PRECEDING THE END OF JULY, 20_____." The district office submits one copy of form PR-1392 to EEO/CM where data will be summarized on a statewide basis and forwarded to the Federal Highway Administration.

Form PR-1391 will include all federal-aid prime contracts regardless of contract dollar value, and all federal-aid subcontracts exceeding $10,000.

In FFY 2005, it may be possible to generate the report through a new computer program. EEO/CM will provide information when this change becomes possible.

B. Additional Reports.

EEO/CM fulfills all federal report requirements concerning employment and contracting programs, including quarterly DBE reports, annual On-The-Job Training reports, individual project review reports and annual Title VI report, among others.

District staff, Engineers, Inspectors and Office Managers may be asked to supply additional data on specific projects or in summary form for other reporting purposes.

CONTRACT TIME

IMPORTANT: Effective November 1, 2002 the District/Metro became responsible for reviewing Contract Time of the finished Contract and certifying that time charges are correct. Districts/Metro will have full accountability for proper Contract Time charges without Central Office review and approval.

The Engineer will complete a computer generated Final Contract Time Certification Report certifying that all Contract time charges are correct and submit it with the Final records. This report will have a Final Contract Date Log attached (also computer generated) where the Engineer will list all pertinent Contract Start & Stop dates etc. and any automatic time extensions provided by Specification 1806.2.

The Final Contract Date Log will be attached to the Final Contract Time Certification Report and submitted to the Office of Construction and Innovative Contracting (OCIC) in the "SPECIAL CONTRACT REQUIREMENTS FILE" at the time of the Final per section 5-591.410. Finals lacking the above requirement will be returned and held in the District until resolved. (For sample Final Contract Time Certification Report & Final Contract Date Log: see Samples **"G" & "H"** at the end of this section).

As described in section 5-591.410 FIELD FINAL REVIEW, certain selected Finals from each District Resident Office that have been passed for payment will receive a non-corrective detailed audit review of the project records. This audit will include a review of the Contract Time portion of the Contract. A copy of each review will be given to the Engineer for his/her review to assist in the preparation of future finals and will indicate specific training needs.

The Office of Construction and Innovative Contracting will be utilized in an advisory and training role only. Upon special request, OCIC will review Revisions of Working Days and Time Extensions provided all information necessary to make such a review (i.e. Status Reports, Working Day Statements etc.) are submitted to OCIC.

The time allowed for completion of all work required by the Contract will be stated in the Special Provisions and that time allotment will be known as the Contract Time. For reasons of public interest, it is essential that the work be prosecuted continuously and effectively, with the least possible delay, to the end that all work will be completed within the time period allowed.

This section of the manual is intended to help you understand the administration of Contract Time as provided for in Mn/DOT Specifications 1806 Determination and Extension of Contract Time and 1807 Failure to Complete the Work on Time.

Definitions of the following terms should be reviewed in Specification 1103-DEFINITIONS before reviewing the following section.

Calendar Day
Contract Time
Specified Completion Date
Working Day

Working Day Charges

This section is intended as a guide in charging working days in accordance with the standard specification. The special provisions and addenda frequently alter the provisions of the specifications, thus a careful review of the applicable special provisions should be made prior to making any working day charges.

Working day charges are assessed on both working day contracts and completion date contracts. Working day charges must also be accounted for on each intermediate completion date whether it is a working day or completion date contract.

It is important that the Project Engineer charge working days in an equitable manner based on the information available at the time of charges. This information determines the contract time and will be used to assess monetary damages if the contractor does not complete the required work within the allotted time on a working day contract. It is also necessary on completion date contracts, as the information will be required in justification of any time extensions that might be warranted.

By specification, the Contractor is given time to mobilize his forces when the Department fails to approve the contract in advance of the latest date specified for beginning contract operations. This is interpreted to mean that the contractor will be given eight calendar days following contract approval to move on the project and start work. Therefore, working day charges will start on the contract starting date or on the eighth calendar day following contract approval (if that day is a regular working day and if the contractor can work on a progress-controlling operation) whichever is the later. The date stamped on the Notice of Contract Approval by the Construction and Contract Administration Section will be used in determining the date to start working-day charges, with the exception that assessment of working day charges will be made for any work conducted prior to the Contract Starting Date when the operations in progress result in a traffic restriction. See Specification 1806.

Example:
Contract Starting Date: April 10, 1994
Contract Approval Date: April 14, 1994(stamped on Notice of Contract Approval)
First day working days may be charged: April 22, 1994

At any specific time, the progress controlling operation is that particular work which must be wholly or partially completed before the next logical operation can be effectively carried out. The contractor's bar chart or critical path schedule will show which operation, or operations, is controlling.

The controlling operation may change during various stages of construction and care should be taken to base working day charges on the actual controlling operation at that time. For example, on a combination grading and base, and surfacing contract, it might be necessary to do some clearing and grubbing or install certain culverts before grading operations could be started. The preliminary work would be considered the controlling operation until this work had advanced to a stage where a continuous grading operation was possible. At the time the grading advances to a point where it is feasible to begin a continuous base operation base becomes the controlling operation. When the base construction is sufficiently advanced, the controlling operation would probably be changed to surfacing.

One working day must be charged on each day the Project Engineer determines that the contractor could have worked effectively on the progress-controlling operation for at least eight hours. If the special provisions require work schedules of other than eight hours per day, daily charges will be based on the daily work schedule required by the special provisions, not the hours scheduled by the contractor nor 8 hours as provided in the standard specifications.

Working Day charges will be determined on the basis of the Contractor's ability to effectively prosecute the progress-controlling operations, in consideration of the Avoidable and Unavoidable delay provisions. Working Day assessments will be as follows:

(1) One whole day will be assessed for each Working Day during which work on the progress-controlling operations can be effectively prosecuted during 8 or more hours of the Contractor's daily work schedule.

(2) A fractional day will be assessed:

(a) When work on the progress-controlling operations can be effectively prosecuted for at least 2 hours but less than 8 hours of the daily work schedule;

(b) When conditions beyond the control of the Contractor and unknown to him at the time of bidding make it impossible to prosecute work on the progress-controlling operations with full efficiency for at least 8 hours of the daily work schedule;
(c) When work can be prosecuted on one or more but not all of the progress controlled operations.

(3) No charge will be made:
(a) When work on the progress-controlling operations cannot be effectively prosecuted for at least 2 hours of the daily work schedule;
(b) On Saturday, Sundays and legal Holidays;
(c) During the inclusive period from November 15 through April 15;
(d) During periods of authorized work suspension, except when suspension is ordered for reasons of fault or negligence on the part of the Contractor.

From Specification 1806.1 (a c); Standard Specifications, Working Day charged are seen to be based upon an eight (8) hour workday. Therefore, regardless of the contractor's actual work schedule said charges should conform to the following table:

Hours Worked (At full efficiency)	Decimal-part of 8 Hr. Work Day	Correct W.D. Charge
8	1.00	1.00
7	0.875	0.9
6	0.75	0.8
5	0.625	0.6
4	0.50	0.5
3	0.375	0.4
2	0.25	0.2
1	0.125	0.0

Note that exact splits are rounded-off to the closest "even" unit (i.e., 0.75 = 0.8, 0. 25 = 0. 2).

Note also that there will be no charge when the "work cannot be effectively prosecuted for at least 2 hours of the normal working schedule". Thus, the Contractor may work 3 hours and experience a 50% delay while performing this work and the resultant working day charge would be 0.0. Likewise, the Contractor may work 9 hours and experience an 80 % delay and the correct charge would be 0. 0 since the actual productive working time would be 1.8 hours, or less than 2 hours of the normal working schedule.

The Working Day charge should be determined by the number of hours the contractor can effectively prosecute work, either actual or theoretical, on the controlling operation (See Mn/DOT 1806). If the effective hours worked are 8 hours or more, the W. D. charge must be 1. 0. Example - Contractor worked 16 hours at 50 % efficiency; he theoretically worked effectively 8 hours, therefore the W.D. charge is 1.0.

The "Hours Worked" column is simple history - the Project Engineer or an authorized representative records the actual hours worked, disregarding efficiency or the Contractor's work schedule.

The "Hours Delayed" column must take into account the Contractor's schedule and his efficiency - the hours delayed must be recorded as the hours lost (either actual or theoretical) from the Contractor's schedule. The lost hours are either avoidable or unavoidable or both, and are recorded in the appropriate column for each day.

If the above procedure is followed, one of two conditions will result and will determine the procedure for establishing the effective hours worked.

Condition 1. The sum of the actual hours worked plus the avoidable hours delayed equal or exceed the Contractor's daily schedule.

In this case, subtract the unavoidable hours delayed from the sum of the actual hours worked and the avoidable delays to establish the effective hours worked. The working day charge is then determined based on 8 hours per working day.

Condition 2. The sum of the actual hours worked plus the avoidable hours delayed are less than the Contractor's daily schedule.

In this case, subtract the unavoidable hours delayed from the Contractor's daily schedule to establish the effective hours worked. The working day charge is then determined based on 8 hours per working day.

It is vital that a day-by-day explanation is given on the Summary of Construction Diary for each day any delay occurs.

Weekly Construction Diary and Statement of Working Days

A Weekly Construction Diary and Statement of Working Days must be submitted on all projects since this is the only record of working day charges. The Weekly Construction Diary and Statement of Working Days may be in handwritten form provided it is legible and all copies are readable. It will not be necessary to submit Weekly Construction Diary and Statement of Working Days on a weekly basis. However, one copy of the Weekly Construction Diary and Statement of Working Days will be submitted to the Office of Construction and Innovative Contracting with the “Final Contract Time Files”. (See section 5-591.410 Final Documentation Submittal / Assembly of Final Packet)

Weekly Construction Diary Forms and Statement of Working Days Forms can be computer generated and printed via the field computer application. The Engineer will furnish the Contractor with a Weekly Construction Diary and Statement of Working Days. The only instances when it will not be necessary to furnish these reports to the Contractor will be:

a. During authorized suspensions of work for which a Change in Contract Construction Status form has been submitted.

b. During ordered suspensions of work provided the ordered suspension is for reasons beyond the control of the contractor, no working days are being charged and a Change in Contract Construction Status form has been completed.

c. When liquidated damages have been waived and all work except vegetation maintenance has been completed and providing a Change in Contract Construction Status form has been completed showing the projected expiration date of the maintenance period.

d. When the contract provides that all work except maintenance and cleanup be completed by the completion date and a Change in Contract Construction Status form has been completed showing the semi-final completion date and the only work remaining is vegetation maintenance, for which the projected maintenance period expiration date is shown, and/or when waiting for warranty time to expire.

In cases "c" and "d" above, a final diary covering the work performed during the maintenance or warranty period must be completed in conjunction with the final status report.

Change in Contract Construction Status

The Change in Contract Construction Status form is used to report the status of an entire construction project as well as the critical parts. This form is available on the Mn/DOT Website http://www.dot.state.mn.us/const/tools/forms.html. As part of the Finals packet, one copy of each status report will be submitted to the Office of Construction and Innovative Contracting with the "Final Contract Time Files". (See section 5-591.410 Final Documentation Submittal / Assembly of Final Packet)

The form must also be prepared for similar changes in status for each intermediate completion date portion covered by the special provisions. When a change in status occurs in the entire contract, and/or one or more intermediate portions, on the same date, these changes can be reported on the same report provided all portions being reported are noted in the appropriate spaces.

Utility construction or relocation, when covered by a utility agreement, is reported on this form, and submitted to the Mn/DOT Utilities Section.

Reports that correct a previous report should be marked REVISED REPORT in the upper right comer, with revisions explained in Remarks section.

Enter on the Status Report the date after which the Project Engineer is waiving Liquidated Damages because the work on the project is substantially completed and is at a point that it is in condition for the safe and convenient use by the traveling public, or is available for next-stage construction.

For the FINAL report, show all dates on which the status changed, thereby providing a rapid chronological resume of the Contract.

Revision of Working Day Memo

The specifications provide that in the event the Contractor fails to agree with the number of working days accounted for during the period covered by the statement, the Contractor shall so indicate in writing to the Project Engineer, showing specifically where the Contractor disagrees, and state the reasons for such disagreement. The Contractor may do so by indicating the items in disagreement, along with the reason on his copy of the working day statements, and returning it to the engineer. If the Project Engineer and the contractor fail to reach an agreement on any statement of working days, the Project Engineer shall refer the statement in question to the Assistant District Engineer-Construction for review.

A review of working day charges is permissible only in the event that conditions, unforeseen at the time certain working day charges were made, controlled the progress and completion of the entire project.

When the Project Engineer feels a revision is justified to a previously completed Statement of Working Days, a memo must be completed setting forth in detail the reasons that justify said revision, citing the date(s) in question and showing the effect of the revisions of the Total Working Days Charged to Date.

The first Weekly Construction Diary completed subsequent to the approval of the revision memo should show the revised Total Working Days Previously Remaining in the Working Day Summary portion of the Weekly Construction Diary. For a sample Revision of Working Day Charges see Sample **"C" & C-1"** at the end of this section.

Contract Time Extensions

The specifications provide that contract time extension may be allowed under certain conditions. The granting of additional contract time is limited to the performance of extra work or increased quantities of work. When a Supplemental Agreement is written authorizing additional or increased quantities of work, additional contract time may be provided for (or no working days charged for the work) in the Supplemental Agreement. **Work Orders for Minor Extra Work mqy not be used to add working days to contract time or to extend completion dates**.

When a contract has overrun the contract time, additional contract time may be granted based on item overruns of contract items (see "WORKING DAY CONTRACTS" below) and/or, on an overrun in the final contract dollar value.

An automatic extension of time is granted based on an overrun of the final contract dollar value. It is processed in a similar manner for both working day and completion date contracts unless precluded by the Special Provisions for completion date contracts. This type of time extension is generally only applicable if, after allowing for previously granted time extensions, the contract time still overruns. It is computed by dividing the difference between the final contract dollar value and the original contract dollar value by the original contract dollar value.

$$\frac{\text{Final Contract \$ Value - Original Contract \$ Value}}{\text{Original Contract \$ Value}} = \text{Time Extension Adjustment Factor}$$

The original contract time in working days or on completion day contracts in calendar days or the number of working days (Monday through Friday) during the completion date period is multiplied by this factor to obtain the time extension. If the completion date contract time extension is done using calendar days the result will be in calendar days which are used seven days per week. If the completion date contract is done using working days during the completion date period the time extension will be in workable days which are used the same as working days.

If however, a previous time extension has been given, the final contract dollar value will be adjusted to reflect this. Excluding or deducting from the final contract dollar value the following determines the "adjusted" final contract dollar value:

1. The value of any Supplemental Agreement(s) and Change Orders that either provide time for, or do not charge workings days for the included work, and/or

2. The final value of item overruns for which no working days are charged or for which a separate time extension is given. The "adjusted" original contract dollar value is determined in a similar manner except the original value of item overruns is deducted. The formula then becomes:

$$\frac{(\text{"adjusted" final contract \$ value}) - (\text{"adjusted" original contract \$ value})}{\text{"adjusted" original contract \$ value}} = \text{Time Extension Adjustment Factor}$$

a. Working Day Contracts

The only time extension situation not covered by the charging of workdays is for overruns of contract Items that at some time during the construction operations constituted the progress-controlling operation. An extension of time recommendation based on an item overrun must include a tabulation of the days worked on the item or items (when the progress-controlling operations involved several items). This tabulation must include every calendar day that work was performed on the item, including Saturdays, Sundays and holidays in order to determine average daily production. In computing average daily production, time is based on the scheduled hours of work for the particular item. In no case can more than one (1.0) day of production be credited for each calendar day worked. The item overrun extension should be processed in a change order as this informs all interested persons of the change, and this single document eliminates the writing of several letters.

See sample **"D"** extension of Time based on item overrun at the end of the Contract Time section.

b. Completion Date Contracts

When computing Completion Date and Intermediate Completion Date time extensions, the following guidelines will generally be followed, however, for unique situations the Project Engineer is advised to contact the Construction and Contract Administration Section.

Time extensions may be granted for reasons beyond the control of the contractor. In addition to the contract value overrun extension previously described, the Project Engineer may grant time extensions for item overruns in the same manner as for working day contracts, as well as other delays which are accounted for in working day charges on working day contracts. All extensions of time for completion date contracts, will result in an extension in workable days, except for overruns of the final contract value, and will require the Project Engineer's letter of recommendation. In addition, each time extension recommendation will usually include two tabulations.

The first tabulation, Delays During the Contract Period, is concerned only with those delays which occurred prior to the contract completion' date. The tabulation should show only those workdays on which a delay occurred. This must coincide with the delays listed in the Weekly Construction Diary and Statement of Working Days. (See Sample **"E"** tabulation of Delays During the Contract Period end of Contract Time section).

The second tabulation, Workable Days Chargeable After the Contract Period lists all hours worked after the Contract Completion Date. The time period covered by this tabulation is from the day following the contract completion date to the semi-final completion date, actual completion date, or through the waiver of liquidated damages date whichever is earliest. (For a sample tabulation of Workable Days Chargeable After the Contract Period see Sample **"F"** at the end of Contract Time section.)

The tabulation of "Delays During the Contract Period" is a measure of the additional time that the Contractor is entitled, and the

tabulation of “Workable Days Chargeable After the Contract Period” indicates the date to which the contract may be extended.

The tabulations are prepared as follows:

1. **Date.** Tabulate only those workdays on which a delay occurred for the delay tabulation and every work day after the contract completion date for the tabulation of workable days chargeable.

2. **Progress-controlling Operation/Hours Worked.** These columns are completed from data as shown on the Weekly Construction Diary.

3. **Weather Delays.** Tabulate all weather delays shown on the Weekly Construction Diary. Twenty-three (23) percent of the total work days in the contract that is considered the normal loss due to weather, is deducted from the total days lost due to weather to determine the time extension for weather delays.

4. **Other Delays.** All delays, which are not either avoidable or attributed to weather, will fall into the "Other" category. Note that holidays are not considered delays.

5. **Avoidable delays are those delays caused by conditions within the Contractor's control.** Avoidable delays are subtracted from any extension of time the Contractor would otherwise be granted, except for extensions based on final contract value overruns, item overruns, ordered suspension found to be unavoidable on the part of the Contractor, and late approval of the contract, which, for this purpose must be examined in two parts. The actual delay in notice is not subject to the subtraction of avoidable delays, while the time allowed for mobilization of forces and equipment following late notice of approval is subject to the subtraction of avoidable delays.

6. **Workable Days Chargeable.** This column indicates the probable working day charge for the day in question, as shown on the Statement of Working Days. Workable days are used the same as working days.

Liquidated Damages

The contractor is required to complete contract work in the time period provided by the contract. A charge called "liquidated damages" is assessed the contractor, according to the specifications or special provisions, for the excess time period used to complete the contract work.

The specifications provided that time extensions will be made for certain conditions over which the contractor has no control and, before any liquidated damages can be assessed, the full time extension must be computed and added to the contract time.

Every calendar day from the calculated extended completion date until the work is completed to the required extent called for in the specifications or provisions, liquidated damages shall be assessed.

When the Contractor has expended all working days as provided in Specification 1806, the Engineer will assess any Liquidated Damages on the Final Voucher. The amount will be as provided in Specification 1807 unless superseded by the Special Provisions for the contract.

HOW TO ASSESS LIQUIDATED DAMAGES ON THE FINAL VOUCHER

The field computer application will give the Engineer the ability to separately assess Liquidated Damages without increasing the total "Value of Work Certified" on the Final Voucher.

Weekly Construction Diaries

Weekly Construction Diary forms can be generated by the field computer application, and are the most desirable format to use. However, various computer generated Weekly Construction Diary forms that have been created in individual District Offices may also be used. The various versions may have some slight variations in layout. Any forms so created and now in use, have been reviewed by OCIC and are considered acceptable. All such forms may be used until such time a standard form may be created and implemented by OCIC. (See Sample **"A" & "A-1"** Weekly Construction Diary & Statement of Working Days at the end of this section).

All Weekly Construction Diary forms selected for use by the Engineer will be subject to the following definitions:

Project Information:

The type of contract, number of working days or completion date and information on intermediate completion times are to be reported as found in the special provisions of the contract.

Contract Start Date**:**
The Contract Starting Date is the latest date on which the contractor can start work as provided by the specifications and special provisions. This is the first date the Project Engineer must charge working day assessments unless work started prior to the Contract Starting Date result in traffic restrictions.

Actual Starting Date:
The actual starting date is the first day any work is performed on the project. It is also the date reported on the notice of Change in Contract Construction Status form.

Progress Controlling Operations of Major Types of Work:
The Progress Controlling Operation (PCO) is the major work and controlling operation during the week covered by the report. This will change during the term of the contract. When the contractor's schedule and work force varies during the week enter the minimum and maximum number of hours and men scheduled for each operation reported. This information is intended as a guide in determining the workdays and the contractor's efforts; therefore, reasonable estimates should be used rather than detailed extractions from the contractor's payrolls.

Weather Conditions:
Weather conditions reported should be as factual as possible and all conditions that might affect progress on the project should be reported. For example, wind or humidity conditions may be affecting the rate of drying. Weather conditions such as temperature or amount of rainfall taken from newspapers, radio and television reports do not necessarily reflect weather conditions on the job site.

Hours Worked:
The hours worked column is used to report the hours actually worked on each of the operations for that week. Designate the Progress Controlling Operation(s) for each day.

Hours Delayed
The hours delayed column is used to report delays in the progress of the operations by recording the difference between the hours worked and the hours scheduled for each operation.

Avoidable Delays (A) & Unavoidable Delays (U)
Delays are classified as Avoidable (A) if they are due to the Contractor's negligence and can be avoided. Or, Unavoidable (U) if the delays are through no fault of the contractor.

Holiday charges:
No working days are charged on legal holidays of the State regardless of whether the contractor works or not. As this is neither an avoidable nor an unavoidable delay the 0.0 workday charge is explained by placing the word "HOLIDAY" in the hours delayed line for that day.

Recording Working Days:
One working day or a fraction thereof is recorded for each day the Contractor is able to work on the controlling operations within the limits of the specifications and special provisions.

Remarks and Daily Explanations:
Summarize the weekly accomplishments, problem areas and overall progress of the work. Report, as they occur, all pertinent dates such as suspension and resumption dates, date liquidated damages started, dates of major traffic changes, date liquidated damages are waived and pertinent completion dates. Finally, report any revisions of the number of working days as a result of Supplemental Agreements, Change Orders and correction of working day charges as these changes occur.

Working Day Summary
Enter "Total Working Days Charged This Week" and subtract these figures from "Total Working Days Previously Remaining" to obtain the "Total Working Days Remaining to Complete Work". This portion of the form need not be completed for completion date contracts.

Contractors and Subcontractors Who Worked This Week:
To complete this section, list the firm names of the prime contractor and all authorized sub-contractors who worked during the reporting period.

Daily Comments and Explanation of Delays:
In this portion, the Project Engineer or an authorized representative should make remarks covering the overall progress of the work. Any inadequacies in the contractor's forces or equipment, proposed plan changes, and any, other than routine, instructions given to authorized representatives of the contractor, should be reported. Following this general summary, comments should be made showing the location where major operations were

performed, together with any other pertinent information relative to other than ordinary construction procedures or methods used in performing the work. This section is also to be used to explain any delays, both authorized and unauthorized, which have been reported earlier in the report. When bridge construction is a part of the contract, brief comments on the status of the work should be included. A statement that all work except maintenance of vegetation has been completed should be included when applicable. If more room is needed, use a plain sheet of paper and attach it to the report.

Change in Contract Construction Status

All items on the Status Report should be completed; following are brief explanations for some but not all blocks on the Change in Contract Construction Status form.

See sample **"B"** Change in Construction Status report at the end of this section.

1. Heading

The information for Items 1 through 6 is obtained from the proposal. When the contract contains more than one project always list the lowest project number first. If the report being prepared is the final report for the contract, print FINAL in the upper right comer.

2. Status of Entire Contract

Enter the date for which the status change is being reported. For the FINAL report, show all dates on which the status changed, thereby giving those concerned a rapid chronological resume of the contract.

Item 7 – Notice to Start Work –

Item 8 – Date Work Started -is the first day the contractor or an authorized subcontractor performed any work, except moving-in. Do not report the contract starting date as given in the proposal unless the work actually started on that date.

Item 9 & 10 – Date Suspended / Date Resumed - State the reason for the suspension and whether requested by the contractor or ordered by the Project Engineer. Any other information that may be necessary to clarify the report should be given here. If a suspension

is involved and the probable resumption date is known it should be included.

Item 11 - Date Opened to Traffic - is the date the entire project is opened to traffic. This date is not necessarily the same date reported in item 12

Item 12 – Liquidated Damages - is the date after which the Project Engineer is waiving liquidated damages because the work on the project is substantially complete and in condition for the safe and convenient use of traffic, or the next operation in the case of stage construction.

Item 13 – Semi-final Completion Date - is the date on which all work except that which is exempted in the contract time section of the special provisions has been completed. When maintenance of vegetation is exempted from the completion date, the anticipated expiration date of the maintenance period is reported in Item 14 on the same report as the semi-final completion date.

Item 15 - Final Completion Date - is the date on which all construction and maintenance obligations of the contractor have been fulfilled. The final status report cannot be submitted until this date.

3. Status of Intermediate Completion Portions, Bridges or Progress Controlling Operations (PCOs) – When a change occurs in the construction status of any Intermediate Completion Portion, Bridge or PCO identify what is changing by filling in the appropriate information.

Item 16 – Special Provision # - is the Special Provision that states the work conditions for this Intermediate Completion Portion. List the Special Provision # and any addenda that may amend the Special Provision.

Item 17 - Bridge # - is the Bridge # affected by the recorded change

Item 18 – PCO - is the Progress Controlling Operation affected by the recorded change while other work continues.

Item 19 – Start Date – is the day that the work of the Intermediate Completion Portion, the Bridge or the PCO begins.

Item 20 – Date Suspended – is the date that the work of the Intermediate Completion Portion, the Bridge or the PCO is suspended. The reason for suspension must be recorded in the REMARKS.

Item 21 – Date Resumed - is the date that the work of the Intermediate Completion Portion, the Bridge or the PCO is resumed. The reason for the resumption must be recorded in the REMARKS.

Item 22 – Date Opened to Traffic - is the date that the work of the Intermediate Completion Portion, the Bridge or the PCO is the date that the work of the Intermediate Completion Portion, the Bridge or the PCO is opened, or available to be opened to traffic.

Item 23 – Date Completed - is the date that the work of the Intermediate Completion Portion, the Bridge or the PCO is the date that the work of the Intermediate Completion Portion, the Bridge or the PCO is completed.

Sample“A”-Weekly Construction Diary & Statement of Working Days

Mn/DOT TP-02120-02 (10/96) MINNESOTA DEPARTMENT OF TRANSPORTATION

WEEKLY CONSTRUCTION DIARY AND STATEMENT OF WORKING DAYS

REPORT NO. 25 FOR THE WEEK ENDING SATURDAY 08/11/2002 180 Working Day

PROJECT INFORMATION
(LOW) S.P. NO.: 0000-0000
CONTRACT NO.: S01294
T.H. NO.TH 56
FED. PROJ. NO.: STATE FUNDS
CONTRACTOR: REEMER CONSTRUCTION
PROJ. ENGR.: JOSEPH JOHNSON
CHIEF INSPECTOR:
TYPE OF WORK:
GRADING, GRAVEL BASE, PLANT MIXED BITUMINOUS A BRIDGE 0001
LOCATION:
E. JCT. T. H. 200 TO N. JCT. T. H. 135

CONTRACTORS AND SUBCONTRACTORS WHO WORKED THIS WEEK	
DENNY'S CONSTRUCTION	G. GASTON CO.

	PROGRESS CONTROLLING OPERATIONS OR MAJOR TYPES OF WORK	HOURS SCHEDULED
1	COMMON EXCAVATION	10
2	SWAMP EXCAVATION	10
3	BRIDGE	10

DAY	DATE	WEATHER CONDITIONS	TEMP HI	TEMP LOW		HOURS WORKED (1)	HOURS WORKED (2)	HOURS WORKED (3)	HOURS DELAYED Av (1) Un	HOURS DELAYED Av (2) Un	HOURS DELAYED Av (3) Un	WORK DAYS CHRD	WORK DAYS PCO
SUN	08/05/2002	CLOUDY	72	60	S							0.0	
MON	08/06/2002	PARTLY CLOUDY	75	61	M		10.0	10.0		10.0		0.0	1
TUE	08/07/2002	PARTLY CLOUDY	73	65	T	6.0	10.0	8.0		7.0	2.0	0.4	1
WED	08/08/2002	CLEAR	79	62	W	10.0	10.0	8.0			2.0	1.0	1
THU	08/09/2002	RAIN	77	64	T	8.0	10.0	8.0		10.0	2.0	0.0	1
FRI	08/10/2002	CLOUDY RAIN	77	64	F	6.0				10.0		0.0	1
SAT	08/11/2002				S							0.0	

CONTRACT AS A WHOLE (EXPLANATION OF DELAYS AND REMARKS)

WORKING ON EMBANKMENT CONSTRUCTION STATION 100 TO 172. MUCK EXCAVATION FROM STATION 145 TO 150. BRIDGE CONSTRUCTION: COMPLETED PIER 1.

Signed Joseph Johnson

Title Proj. Engineer

WORKING DAY SUMMARY:	
Previous Working Days Remaining	180.0
Working Days Charged This Week	1.4
Total Working Days Remaining	178.6

Distribution: 2 Contract Administration
1 Contractor
1 PE / ADE

See Contract Administration Manual 5-591.340 Series for Instructions Relative to the Preparation of This Report

Sample"A-1"-Weekly Construction Diary & Statement of Working Days(Cont)

WEEKLY CONSTRUCTION DIARY AND STATEMENT OF WORKING DAYS

REPORT NO. 25 S.P. NO. 0000-0000 FOR THE WEEK ENDING SATURDAY 08/11/2002

DAILY REMARKS AND COMMENTS

Sunday 08/05/2002

Monday 08/06/2002
PCO IS COMMON EXCAVATION. U-DELAYS TO WEEKEND RAINS CAUSING WET CONDITIONS. WORKED ON SWAMP EXCAVATION AND FORMING PIER 1.

Tuesday 08/07/2002
PCO IS COMMON EXCAVATION. CONTRACTOR WORKED ON COMMON EXCAVATION 6 HOURS AT 50% EFFICIENCY DUE TO WET CONDITIONS. 4 HOURS U-DELAY DUE TO RAIN SHUT DOWN WORK. EXCAVATION FROM STA. 100+000 TO 108+000. MUCK EXCAVATION AT STA. 145 TO 146. BRIDGE - FORMING PIER 1.

Wednesday 08/08/2002
PCO IS COMMON EXCAVATION. CONTINUED COMMON AND SWAMP EXCAVATION. BR. - FORMING PIER 1.

Thursday 08/09/2002
PCO IS COMMON EXCAVATION. CONTINUED COMMON AND SWAMP EXCAVATION AT 0% EFFICIENCY. NO WORKING DAY CHARGED DUE TO RAIN.

Friday 08/10/2002
PCO IS COMMON EXCAVATION. CONTRACTOR CONTINUED COMMON EXCAVATION TO STA. 175. WORKED 6 HOURS AT 0% EFFICIENCY DUE TO WET CONDITIONS AND SHUT DOWN DUE TO RAIN. NO OTHER WORK PERFORMED DUE TO RAIN.

Saturday 08/11/2002

What the **Controlling PCO** is for each day has to be designated either on the diary or in the daily remarks and comments.

EXAMPLE: Method of computing working day charge on Tuesday 8/7/02

Contractor Schedule			10 hours
Worked			6 hours
U-delay			4 hours (Shut down delay)
U-delay	50% X 6 hours	=	3 hours (Efficiency delay)
U-delay Total 4 + 3		=	7 hours

The hours worked plus the hours avoidable are less than the Contractors schedule (6 + 0) is less than the Contractors schedule of 10 hours making this Condition 2 (See Construction Manual Page TIME-5 and TIME-6)

10-7 = 0.4 Working Day Charge (See Construction Manual Page TIME-4)
8

Sample "B"- Change in Construction Status Report

MINNESOTA DEPARTMENT OF TRANSPORTATION

CHANGE IN CONTRACT CONSTRUCTION STATUS

Note: All dates are to be the actual dates the status of the Contract has changed. Use a separate form for each date reported. Refer to Contract Administration Manual No. 5-591.340 for further information relative to preparation on this report.

1. (Low) S.P. _____ **2. Fed. Proj. No.**_____**3. Contract No.** _____
4. Location _____
_____
5. Type of Work_____
_____
6. Contractor _____

STATUS OF ENTIRE CONTRACT

7. Date Notice to Start_____ 8. Date Work Started _____ **(**First Date ANY Work Performed**)**

9. Date Suspended _____Reason:_____
(If not the last date of work at suspension, or if suspension is not authorized by the Engineer, explain in REMARKS)

10. Date Resumed _____ Reason:_____
(If not first date of work at resumption, i.e. if the contractor fails to resume work following notification of end of suspension period , explain in REMARKS)

11. Date Opened to Traffic_____

12. Liquidated Damages Waived After_____ as documented by _____

13. Semi-Final Completion Date_____ (The date on which all work was completed except that work exempted by the Special provisions, If Special Provisions work, no Semi-Final Completion Date can be declared)

14. Expiration Date of Vegetation Maint. Period _____ (When a Semi-final Completion Date has been declared and the on remaining work is Vegetation Maintenance, no further Weekly Diaries need be submitted until the Final Completion Date. In all other cases ,Diaries are required through the Final Completion Date**.)**

15. Final Completion Date: _____(The date on which all construction obligations of the Contractor were completed including Maintenance and Final Cleanup.)

STATUS OF INTERMEDIATE COMPLETION PORTIONS, BRIDGES OR P-C-O

16. Spec.Prov. #_____ 17. Bridge # _____ 18. P-C-O _____

19. Date Started_____ 20. Date Suspended _____21. Date Resumed_____

22 .Date Opened to Traffic_____23. Date Completed_____

REMARKS:_____
_____
_____
_____
_____

Date Prepared_____ Project Engineer _____
Distribution: Construction (2), Contractor (1) Proj. Eng. (1) , Dist. Eng. (1) Signature

Sample "C" - Revision of Working Day Charges Memo

Department: District #
Office Location

STATE OF MINNESOTA
Office Memorandum

TO: Don Orgeman
Contract Administration Engineer
Office of Construction & Contract Administration

Date: _____

From: Name
Project Engineer

Phone: _____

Subject: S.P._____
Contract # _____
Revision of Working Days

The Engineer has determined that the original working day charges did not allow sufficient credit, through reduced charges, for the time the contractor was delayed by the necessity to reorder water main parts on the above referenced project.

The pertinent dates and data relative to this contract are as follows:

Contractor:	_____
04-26-2002	Approval Date
05-02-2002	Contract Start Date
05-03-2002	Actual Start Date
100 WD	Contract Completion Date
11-25-2002	Semi-Final Completion Date
12-02-2002	Final Completion Date

Because the inplace water main was of a different diameter than shown on the plans, the Contractor had to reorder some fittings. This delayed the Contractor 4.1 Working Days by holding up the grading operations while the water main was being installed. At the time of bidding, the Contractor scheduled the water main work to be complete before the grading would have been held up in the area in question. During the time the water main work was delaying the grading operation, the Progress Controlling Operation was erroneously attributed to the water main work as documented by the Weekly Construction Diaries.

Based on the above facts, the following revisions to the original working day charges are recommended:

Page 1 of 2

Sample " C-1"- Revision of Working Day Charges Memo, (cont.)

Tabulation of Revised Working Day Charges

Note: Only days on which the original charges are to be revised are shown.

Date	Progress Controlling Operation	Hours Worked On PCO	Total Hours Worked	Original Charge	Revised Charge	Remarks
05/22/02	Grading	0	10	1.0	0.0	Worked on Water Main
05/23/02	Grading	0	10	1.0	0.0	Worked on Water Main
05/24/02	Grading	0	10	1.0	0.0	Worked on Water Main
05/27/02	Grading	0	5	0.6	0.0	Rain
05/28/02	Grading	0	10	1.0	0.5	Completed Water Main at noon.
Totals				4.6	0.5	

Total reduction of Working Day Charges: 4.6 – 0.5 = -4.1

Weekly Summary of Working Days should be revised as tabulated above on Report numbers 4 and 5.

cc: Contractor
Office of Construction & Contract Administration / Time Section
District Engineer
Project File

Page 2 of 2

Sample "D" – Extension of Time Based on Item Overrun

SP _____ Date:_____
Contract # _____
Documentation for Change Order ___*

Calculation of extension of time on the basis of the combined overrun of bituminous resurfacing items:

Final Quantity of Bituminous Mixtures	36,467 Tons
Planned Quantity of Bituminous Mixtures	34,051 Tons
Overruns of Bituminous Mixtues	2,416 Tons

Number of days worked on bituminous resurfacing = 20.9 (see below)
Average Production = 36467 tons = 1744.8 Ton/Day
20.9 days

Extension of time allowable = ton overrun/average production =
2,416 = 1.38 or 1.4 Workable days extension of Time allowable
1,744.8

Number of days worked on bituminous resurfacing as shown by the Weekly Construction Diaries & Statement of working Days.

DAY	DATE	HOURS SCHED	HOURS WORKED	DAYS WORKED	DAY	DATE	HOURS SCHED	HOURS WORKED	DAYS WORKED
W	9-2-98	10	5	0.5	**T**	10-13-98	8	6 ½	0.8
W	9-9-98	9	5 1/2	0.6	**W**	10-14-98	8	7	0.9
TH	9-10-98	9	9	1.0	**TH**	10-15-98	8	7	0.9
F	9-11-98	9	9	1.0	**F**	10-16-98	8	7	0.9
M	9-14-98	9	3	0.3	**M**	10-19-98	8	8	1.0
W	9-16-98	9	8	0.9	**TH**	10-22-98	8	6	0.8
F	9-18-98	9	9	1.0	**M**	10-26-98	8	5	0.6
M	9-21-98	9	6	0.7	**W**	10-28-98	8	6 ½	0.8
T	9-22-98	9	8	0.9	**TH**	10-29-98	8	8	1.0
W	9-23-98	9	4 ½	0.5	**TH**	11-5-98	8	8	1.0
F	9-25-98	9	1	0.1	**F**	11-6-98	8	8	1.0
M	9-28-98	9	9	1.0	**S**	11-7-98	8	1 ½	0.2
T	9-29-98	9	9	1.0					
M	10-5-98	8	6 ½	0.8	TOTAL DAYS ON BITUMINOUS RESURFACING = 20.9				
M	10-12-98	8	5 1/2	0.7					

* Change Orders are no longer required but are an excellent documentation tool.

Sample "E"– Extension of Time for Completion Date and Intermediate Completion Date Contracts

DELAYS DURING THE CONTRACT PERIOD S.P._____

From the CONTRACT STARTING DATE = June 4, 2001 to the CONTRACT COMPLETION = June 7,2002

DATE	PROGRESS CONTROLLING OPERATION	HOURS WORKED ON C.O.	TOTAL HOURS WORKED	DELAYS – IN WORK DAYS			EXPLANATION OF DELAYS
				WEATHER	OTHER	AVOIDABLE	
6-4-01	Grading	0	0		1.0		Late approval of Contract
6-5	"	0	0		1.0		" " " "
6-6	"	0	0		1.0		" " " "
6-7	"	0	0		1.0		NOTICE OF APPROV.DATE
6-8	"	0	0		1.0		10 Calendar Days allowed for mobilization of forces
6-11	"	0	0		1.0		
6-12	"	0	0		1.0		
6-13	"	0	0		1.0		
6-14	"	0	0		1.0		
6-15	"	0	0		1.0		
6-18	"	0	0			1.0	Contractor not on Project
6-19	"	0	0			1.0	" " " "
6-20	"	0	0			1.0	" " " "
6-21	"	0	0			1.0	" " " "
6-22	"	0	0			1.0	" " " "
7-18-01	"	0	8	1.0			Rain – Too Wet to Work
7-19	"	4	8	1.0			Rain AM – Too Wet PM
7-20	"	8	8	1.0			Drying Grade – 0% eff.
7-23	"	8	12	0.5			Drying Grade – 50% eff.
8-21-01	"	0	0	1.0			Rain all Day – No Work
8-22	"	8	8	0.7			Drying Grade – 30% eff.
10-1-01	Base	8	8	0.5			Rain over Weekend – 50% efficiency
10-2	"	0	4	1.0			Drizzle – no base work
10-3	"	8	8	0.3			Wet conditions – 70% eff.
11-12-01	"	0	0			1.0	Contractor not on Project
11-13	"	0	0			1.0	" " " "
11-19	Bituminous	0	8		1.0		Strike by Operators
11-20	"	0	8		1.0		" " "
11-21	"	0	0		1.0		" " "
11-30	"	0	0	1.0			Rain all day
SUSPENDED 11-15-2001 AND RESUMED 05-06-2002							
5-14-02	Lighting	0	8		1.0		Promised delivery date of Light Standards (1)
5-15	"	0	8		1.0		" " " "
5-16	"	0	8		1.0		" " " "
5-17	"	0	8		1.0		" " " "
5-20	"	0	8		1.0		" " " "
5-21	"	4	8		0.5		Stds. Delivered at noon
5-28	"	0	0	1.0			Thundershowers
5-29	"	0	0	1.0			Extreme wet conditions
				9.0(2)	15.5	7.0	

(1) Supplier was unable to meet promised delivery date for reasons beyond his control.

(2) Normal weather –loss expectancy (23% of the 149 Work Days in the contract period, excluding authorized suspensions) = 34 work days, therefore, no extension of time is allowable for delays caused by inclement weather.

Sample "F" – Workable Days Chargeable After the Contract Period

WORKABLE DAYS CHARGEABLE AFTER THE CONTRACT PERIOD

S.P._____

From the day following the CONTRACT COMPETION DATE OF June 7, 2002 through the WAIVER DATE of July 23,2002

DATE	PROGRESS CONTROLLING OPERATION	HOURS WORKED ON C.O.	TOTAL HOURS WORKED	WORKABLE DAYS CHARGEABLE	EXPLANATION OF DELAYS
6-10-02	Lighting	8	8	1.0	
6-11	"	8	8	1.0	
6-12	"	8	8	1.0	
6-13	"	4	4	0.5	Rain in PM – Too wet to work
6-14	"	8	8	1.0	
6-17	"	8	9	1.0	
6-18	"	0	8	1.0	No Work on Controlling Oper
6-19	"	0	8	1.0	" " " " "
6-20	"	0	8	1.0	" " " " "
6-21	"	0	8	1.0	" " " " "
6-24	"	0	9	1.0	" " " " "
6-25	"	8	8	1.0	
6-26	"	8	8	1.0	
6-27	Guard Rail	8	8	1.0	
6-28	"	8	8	1.0	
7-1-02	"	8	8	0.7	Rain/drizzle – 70% efficiency
7-2	"	8	8	1.0	
7-3	"	8	8	0.5	Heavy pre-holiday traffic 50% efficiency
7-4	"	0	0	0.0	Holiday
7-5	"	0	0	0.0	No work permitted by spec
7-8	"	0	0	1.0	Contractor not on project
7-9	"	8	8	1.0	
7-10	"	8	8	1.0	
7-11	"	8	8	1.0	
7-12	"	8	8	1.0	
7-15	"	8	8	1.0	
7-16	"	8	8	0.5	50% eff – extreme high temps
7-17	"	8	8	0.5	" " " " "
7-18	"	8	8	0.5	" " " " "
7-19	"	8	8	0.7	70% " " " "
7-22	"	8	8	1.0	
7-23	"	8	8	1.0	Completed Guard Rail Work
TOTAL WORKABLE DAYS CHARGEABLE				26.9	LIQUIDATED DAMAGES WAIVED AFTER 7-23-02 in accordance with Change Order No. 2

Sample "G"– Final Contract Date Log (Attachment to Final Contract Time Certification Report). (Report can be completed handwritten if desired)

FINAL CONTRACT DATE LOG

State Project : 0906-41 **Contractor:** Reemer Construction Inc.

	Contract as a Whole	Intermediate S-	Intermediate S-
Date of Letting	10/25/96		
Notice of Approval Date	11/26/96		
Contract Start Date	5/19/97		
Actual Start Date	12/16/96		
Suspension of Work Date.	3/5/97, 12/10/97		
Resumption of Work Date	4/14/97,4/27/98		
Contract Date of Completion	150 W.D.		
Extended Date of Completion	185.7 W.D. (1)		
Liquidated Damages Waived	7/17/97		
Working Days Expended	154.6 W.D.		
Semi-Final Completion Date			
Working Days Expended			
Final Completion Date	11/10/98		
Working Days Expended			
Deduction Liquidated Damages			
TOTAL DEDUCTIONS	None		

NOTES: (1) Extension of Time per Specification 1806.2
Final Contract Value = $3,330,559.35 = 1.238% x 150 W.D. 185.7 W.D.
Original Contract Value = $2,690,198.02

COMPILED BY _____ **DATE**_____

Sample "H" – Final Contract Time Certification Report

FINAL CONTRACT TIME CERTIFICATION REPORT

State Project No. _____ Contractor: _____

Contract No. _____

PART I

APPLIES ONLY TO THOSE PROJECTS THAT **HAVE CONTRACT TIME REMAINING** AT THE TIME OF COMPLETION (INCLUDING ALL INTERMEDIATE TIME REQUIREMENTS)

Verification Statement: I hereby certify that the Contract Time portion of this project has been administered in accordance with the provisions of Standard Specifications 1806 & 1807 and as stated in the Special Provisions for this Contract. All work required by this Contract has been completed on time and no Liquidated Damages will be assessed.

_____Date _____

Project Engineer / Supervisor

PART II

APPLIES TO THOSE PROJECTS THAT **DO NOT HAVE** CONTRACT TIME REMAININGAT TIME OF COMPLETION (INCLUDING ALL INTERMEDIATE TIME REQUIREMENTS

Liquidated Damages will be assessed on this Contract in the amount of $ _____

Verification Statement: I hereby certify that the Contract Time portion of this project has been administered in accordance with the provisions of Standard Specifications 1806 & 1807 and as stated in the Special Provisions for this Contract. All work required by this Contract was not completed on time and Liquidated Damages will be assessed.

_____Date _____

Project Engineer / Supervisor

All necessary supporting documentation to verify either **PART I** or **PART II** above is included with the attached Final Contract Time Files. This supporting documentation includes, but is not limited to, Weekly Construction Dairies, Construction Status Reports, Revision of Work Day Memos, Time Extension Letters, Item Over-run Time Extension Letters and any calculations that effect Contract Time.

Definitions of the following terms should be reviewed in Specification 1103 before reviewing the following section:

CHANGE ORDER
EXTRA WORK
FORCE ACCOUNT
MINOR EXTRA WORK
SUPPLEMENTAL AGREEMENT
WORK ORDER - MINOR EXTRA WORK

Conditions of the project may exist that will not necessarily be those anticipated when the plans and provisions were prepared. Certain omissions, errors or plan changes will need correction before the project is properly completed. This section of the manual is intended to furnish instructions on documents and procedures used to implement these changes. The documents are: Change Order, Work Order - Minor Extra Work ("Work Order - MEW") and Supplemental Agreement. See CONCHNG-22 for schematic view of these options.

Change Orders

The Engineer may issue a Change Order to document a contract change that is permitted by Special Provision, Plan or Specification. Change Orders are not mandatory but are recommended as tools for documentation. In the absence of a Change Order, all of the required documentation may be included on the applicable Item Record Account(s) or by separate record. In any case, all changes must have a clear and logical audit trail.

Only a Supplemental Agreement can revise the terms of a contract. See the Supplemental Agreement portion of this manual for further information.

The following are some (but not limited to) typical uses of Change Orders

- Revising the method of measurement as per Specification 1901 "Measurement of Quantities"

- Waiving liquidated damages after the project is in condition for safe and convenient use by the traveling public, or is otherwise available for next-stage construction without restriction

- Documenting unacceptable work or materials

- Documenting bonus payments to the Contractor for exceeding established pavement ride quality, quality standards, or early completion as provided in the Contract

- Documenting changes in the original plan (P) quantity due to re-measurement or re-computation. This is especially advised when revising a (P) quantity that is part of a Municipal Agreement.

- Documenting substitution of materials

- Documenting substitutions of methods or equipment at the Contractors request

- Documenting changes resulting from adoption of new standards, new instructional memoranda, or recommendations from Central Office

- Documenting increased or decreased quantities

- Documenting minor grades changes, sub-grade excavation changes (such as adding, lengthening, or deepening), and structure excavation changes (such as enlarging or deepening)

- Documenting item overruns in accordance with Specification 1806.2

- Documenting time extensions for late contract approval for completion date contracts

- Documenting final pay Quantities for landscape items

If any of the above changes result in a modification of contract time, a Change Order is recommended to document such modifications.

Contract cost overruns resulting from Change Orders must be encumbered according to the instructions contained in the Fund Encumbrance portion of this manual.

Whenever a Change Order affects items in a group that is funded wholly or in part by a County or Municipality, the Engineer must inform the Office of Technical Support, Municipal Agreements Unit promptly so that they can update the Cooperative Agreement associated with the project.

Work Order-Minor Extra Work (Work Order-MEW)

A Work Order-MEW is a document used by the Engineer or Project Supervisor directing the Contractor to perform "minor extra work" in situations where there is no contract unit price for the work or work item. This form is available on the Intranet at http://www.dot.state.mn.us/const/main/post-let.html or by calling the Supplemental Agreement Specialist at 651-296-6896. The Work Order-MEW is not an agreement and does not authorize payment. Specification 1403 "Extra Work" authorizes payment for minor extra work necessary to complete the Contract as originally intended. The Special Provisions for each contract will state the maximum dollar allowed per work order occurrence. **Work Orders - MEW may not be used to add working days to contract time or extend completion dates.**

Payment for minor extra work may be made by negotiated unit price or by force account. Approval for negotiated unit prices from the Mn/DOT Engineering Cost Data and Estimation Unit (Mn/DOT Estimating) is mandatory on any Work Order where the total of the negotiated items exceed $5,000.00.

All Work Orders that specify Force Account as the Basis of payment, regardless of cost, require approval of the equipment rental rates from the Mn/DOT Estimating Unit.

Each District's or Division's Construction ADE may choose to have approval of negotiated unit prices where the total of the negotiated items is less than $5,000.00. If a district opts to use this method, the price justification for each negotiated item, where the total of the negotiated items is less than $5,000.00, is the responsibility of that District or Division. The Mn/DOT Estimating Unit is willing to review and give approval on any negotiated Work Order item regardless of any of the above cost considerations.

The Construction ADE (State Aid ADE in the case of State Aid projects) must sign all Work Orders that have a value greater than $25,000.

Each minor extra work occurrence may use any combination of methods of payment as may be provided by the Contract. However, each method of payment within the same Work Order-MEW will have a separate Item Record Account for each method used on every voucher pay group involved. An Item Record Account must be generated for every group affected by the Work Order-MEW. Specific step-by-step instructions for Work Order data entry are provided under

the CREATE OPTION of the Contract Administration Advanced Record System (C.A.A.R.S.)

Work Orders-MEW are numbered consecutively. They need not be written in formal language or typed. They must be legible, clearly state work to be accomplished, and include a total estimated cost. A detailed estimate of cost may be included on each Work Order-MEW. However, it is not mandatory. The total estimated cost must contain all items where the Engineer, Contractor, and when appropriate, the Mn/DOT Estimating Unit have agreed upon the unit price.

Contract cost overruns resulting from Work Orders- MEW must be encumbered in accordance with the Fund Encumbrance portion of this manual.

Whenever a Work Order-MEW affects items in a group that is funded wholly or in part by a County or Municipality, the Engineer must inform the Office of Technical Support, Municipal Agreements Unit promptly so that they can update the Cooperative Agreement associated with the project.

Supplemental Agreements

A Supplemental Agreement is a legal and binding document that modifies the original contract as executed and approved. Supplemental Agreements must be written and executed for contract modifications and for extra work that is not considered minor, or in the absence of allowable specification deviations, price schedules and adjustments, or modifications provided for in the Contract.

The following are changes that must be made by Supplemental Agreement:

1. Performance of "Extra Work" as defined in Specification 1403:
2. Alterations in special provisions and specifications (including Contract Time);
3. Experimental work or procedures (approval required by the Research Implementation Coordinator in the Mn/DOT Office of Research Administration);
4. Revisions in the structural section above the sub-base;
5. Alterations in the scope of the contract or character of the work;
6. Major revisions in geometric design of the mainline roadway, ramps, frontage roads, or crossovers and additions, deletions or;
7. Additions, deletions or relocations of bridges or other structures that would affect the functional scope and intent of the approved design.

When new policies or changes in standards require modifications on active Contracts, the Office of Construction and Innovative Contracting (OCIC) may

write draft boilerplate Agreements. The OCIC personnel will distribute these Agreements to the Resident Offices.

Whenever a Supplemental Agreement affects items in a group that is funded wholly or in part by a County or Municipality, the Engineer must inform the Office of Technical Support, Municipal Agreements Unit promptly so that they can update the Cooperative Agreement associated with the project.

A. Standard Procedure

The following is the Standard procedure in preparing Supplemental Agreements.

1. A project change, meeting one or more of the Supplemental Agreement criteria listed above, needs to be resolved. The Engineer and the Contractor discuss and consider possible solutions and initiate price negotiations.

2. The Engineer analyzes the possible solutions and solicits recommendations from District or Central Office personnel as needed. The Engineer works with the Contractor and the Mn/DOT Estimating to determine justifiable unit prices.

3. Depending on the complexity of the agreement, the Engineer meets with one or more of the following to choose the best solution to the problem: District Engineer, Assistant District Engineer, Resident Engineer or other delegated authorities.

4. The Engineer writes the Supplemental Agreement. A Supplemental Agreement is composed of four general areas. The first area ("Header") covers administrative information about the Contractor and the project. The second area ('Whereas") covers the background information for the Agreement. The third area ("Now, Therefore") clearly states the obligations for the Contractor and Mn/DOT to solve the problem. The fourth ("Estimate of Cost") reiterates the method of payment detailed in the "Now, Therefore" and establishes any change in contract value. The following is an outline of what should be addressed in the Agreement:

   In the Header' portion:
   - Contractor Name/Address
   - State Project Number
   - State Contract Number
   - Federal Project Number (if applicable)
   - Project Location

Supplemental Agreement Number

In the “Whereas" portion:
- General Project Description
- Specific Problem/Change
- Determined Solution

In the "Now, Therefore" portion:
- Contractors Responsibility
- Mn/DOT's Responsibility
- Applicable Specification/Revision
- Method of Payment
- Method of Measurement
- Contract Time Provisions
- Appropriate Disclaimer Paragraph*

In the "Estimate of Cost" portion
- Increased Contract, Negotiated and Force Account items
- Decreased Contract Items
- Negotiated Credits
- Distribution of Funds

*While it is preferable to keep the disclaimer in the agreement, Contractors sometime elect to cross out this paragraph. The Office of Construction and Innovative Contracting (OCIC) must review the validity of this change for each project. The Contractor may not cross out the disclaimer if the Agreement is a claim settlement, nor if the Agreement is being executed at the request of the Contractor.

The OCIC has a variety of boilerplate agreements available and personnel assigned to answer specific questions about Supplemental Agreements.

The most current Supplemental Agreement forms are available through the OCIC website at http://www.dot.state.mn.us/cons/main/post-let.html or by calling the Supplemental Agreement Technician at 651-296-6896. The OCIC encourages the use of the most recent form.

5. The Engineer has the Assistant District Engineer or Resident Engineer review the Supplemental Agreement. A draft copy of all agreements that are not routine in nature should be sent to the OCIC Supplemental Agreement Technician for review.

Note: The draft copy may be sent using GroupWise, e-mail or fax. The GroupWise address is Karen Peters; the e-mail address is karen.peters@dot.state.mn.us. The fax number is 651-205-4424. GroupWise and e-mail are recommended because after review and modifications, the Agreement may be printed and ready for signing without the need to retype the Agreement. Drafts can be sent using Microsoft Word.

6. After making the final revisions, the Agreement is approved and signed by the Engineer, Contractor and the Assistant District Engineer. All parties must sign the last page of the Agreement. However, all the pages of the Agreement may be signed if desired. The original Supplemental Agreement is sent to the Office of Construction and Innovative Contracting. All Supplemental Agreements must include a transmittal letter that includes the justification of cost and time extension.

7. OCIC will review and approve the Supplemental Agreement before routing the agreement through the following required areas: Mn/DOT Budget Office and Office of EEO and Contract management (Contract Management), as delegated by the Department of Administration. The following are additional areas that review or approve the Supplemental Agreement as needed: Time Extension, Cost Data and Estimation, and Claims. See section 5-591.120 for further discussion of pre-approval of SAs for Federal Funded projects.

8. When Contract Management has approved the Supplemental Agreement and the funds have been encumbered, the Agreement is considered fully executed.

After the SA is fully executed:

OCIC enters the necessary Agreement information into a Contract Management System (CMS).

CMS transfers the data to a District file queue.

District personnel can then download the file to a computer disk and distribute the disk to the appropriate field personnel for uploading into their Contract Administration Advanced Record System (CAARS).

OCIC sends a scanned email copy to the District Office. The District Office is requested to forward a copy to the ADE and District Design. However, the computer queue with approved funding may precede the fully executed

Agreement. It is advisable to periodically check the queue for Agreement information. The OCIC Automation Section should be contacted for further information on appropriate procedures.

9. Once the information is loaded into CAARS, the Engineer can then pay the contractor for extra work that has been performed and accepted.

B. Expedited Supplemental Agreements Part A and Part B

This replaces the entire section Emergency Procedures dated April 1, 1996 pages CONCHNG-7 to CONCHNG-8.

When a project change occurs that requires extra work to be performed immediately or prior to execution of a Supplemental Agreement using the "Standard" procedure, an expedited Supplemental Agreement consisting of a Part A and Part B agreement may be used.

Supplemental Agreement Part A and Part B should not be used for Claims, changing Contract Time or Contract Specification Provisions that involve no change in cost, nor when there is ample time to complete negotiations of all aspects of the Agreement in the "Standard" procedure. Any questions regarding the proper use of Supplemental Agreement Part A and Part B should be referred to the OCIC Supplemental Agreement Specialist at 651-296-6896.

Supplemental Agreement Part A

Note: Authorizing the work involved with a SA Part A before it is fully executed is in violation of Mn Statute MS 16C.05.

The following is the procedure for preparing Supplemental Agreements Part A. (Part A)

1. A project change, meeting one or more of the Supplemental Agreement criteria listed above, needs to be resolved. The Engineer and the Contractor discuss and consider possible solutions and initial price negotiations.

2. The Engineer analyzes the possible solutions and solicits recommendations from District or Central Office personnel as needed. The Engineer works with the Contractor and the Mn/DOT Engineering Cost Data and Estimation Unit (Mn/DOT Estimating Unit) to determine justifiable unit prices, or Force Account

3. Depending on the complexity of the agreement, the Engineer meets with one or more of the following to choose the best solution to the problem: District Engineer, Assistant District Engineer, Resident Engineer or other delegated authorities.

4. All negotiated costs must be reviewed and approved by the Mn/DOT Estimating Unit.

5. The Project Engineer/Supervisor writes the Part A. A Part A may be written in less formal manner than the "Standard" Supplemental Agreement and is composed of these general areas:

Header portion (same as standard format):
State Contract Number
Contractor Name/Address
State Project Number
Federal Project Number (if applicable)
Supplemental Agreement Number
Location of Work

General Scope of Project: Provide in general terms, the description of project. This may be copied from the cover of the contract.

Problem: Provide a general overview of the situation encountered and why it is essential to be completed under the contract.

Resolution: Briefly provide an explanation of what Extra Work is to be performed and what will be expected of the contractor. This should include a directive: "The Contractor will…".
Is this work within the scope of the project? Answer yes or no.

If No, please explain the urgency that the work has to be done now. This is mandatory in order to assure Contract Management and Mn/Dept- of Administration that the work should not be considered as a separate contract.

Estimate of Cost: List all known Force Account, Contract Bid, and Negotiated Items with their estimated quantities, unit costs and the item amounts. It is understood that in certain circumstances it will not be possible to have all the prices negotiated. These items will be included in Part B. If the payment is to be

Force Account, the amount will be estimated, and final costs will be included in Part B.

The Mn/DOT Estimating Unit must approve all negotiated prices. The Project Engineer/Supervisor acknowledges approval by initialing the line "These costs have been reviewed and approved by the Office of Technical Support's Pre-Letting & Estimating Unit".

The statements may be brief but must contain sufficient information for all parties to understand the situation. There are no “Whereas” or “Now, Therefore” statements.

6. The Project Engineer/Supervisor, Contractor, and ADE sign the Part A. Part A may be faxed simultaneously to the Contractor and the ADE for signature and returned to the Project Engineer by fax.

7. All copies of the Part A are faxed to OCIC for Agency, Dept. of Administration approval, and FHWA (when appropriate) and fund encumbrance. These approvals are attained simultaneously rather then sequentially as required for a "traditional" Supplemental Agreement.

8. When all signers have returned a signed copy of Part A to OCIC and the necessary funds encumbered, the Part A is fully executed. It is anticipated that Part A would be fully executed within days after receipt by OCIC. The Supplemental Agreement signers are committed to expediting Part A Agreements.

9. OCIC faxes a copy of the fully executed Part A to the Project Engineer.

After the SA is fully executed: The Engineer may authorize the work.

10. OCIC transfers the computer file containing a descriptive line and the encumbrance amount to a District file queue. No pay lines are included in the download. Payment will be made in the field as a miscellaneous back sheet item.

11. District personnel can then download the file to a computer disk and distribute the disk to the appropriate field personnel for uploading into their Contract Administration Advanced Record System (CAARS).

12. Payments may be made upon acceptance of the extra work.
Payments made under Part A may not exceed the total amount encumbered for Part A.

Supplemental Agreement Part B (Part B)

Part B will be a “standard” Agreement that will include all negotiated prices and requirements. The Estimate of Cost will include the amount encumbered in Part A in order to ensure that the final encumbrance will be increased or decreased accordingly.

When Part B is fully executed a downloaded, a descriptive line and the pay lines will be added to the voucher in the manner of a “standard” Supplemental Agreement. At this time, any payments made on the back sheet pay lines will be reduced to 0.00. Any increase of funds listed in Part B will be downloaded. If Part A overestimated the money needed for the Agreement, Part B download will decrease the encumbrance.

When the Project Final is sent to OCIC, Part A will be deleted entirely from the Final Voucher.

C. Work Performed Before Authorization

Contract modifications may only be authorized by fully executed Supplemental Agreements, or by issued Work Orders-Minor Extra Work. Under no circumstances may Project Engineers/Supervisors authorize Extra Work prior to the execution of a Supplemental Agreement or the issuance of a Work Order. A signed and dated statement by the Engineer and Contractor describing the work to be performed and the basis of payment as previously required in section Emergency Procedures dated April 1, 1996 pages CONCHNG-7 to CONCHNG-8 infers authorization and is contrary to Statutes. Any order by the Engineer/Supervisor to commence work or make payment for work prior to execution of a Supplemental Agreement or issuance of a Work Order is in violation of Minnesota Statute 16C.05.

In those circumstances where a Contractor elects to begin work prior to execution of a Supplemental Agreement or issuance of a Work Order, the Engineer/Supervisor must inform the contractor, verbally or in writing, that such work is unauthorized work in accordance with Standard Specification 1512 (Unacceptable and Unauthorized Work)

D. MS16A and MS16C Violations

It is against Minnesota Statutes to pay for work before a SA is fully executed. Furthermore, it is against Minnesota Statutes to obligate the State to a new Contract (Supplemental Agreement) before the SA is fully executed. This is a MS16A (obligation for work before necessary funds are encumbered) and/or a MS16C violation (obligation for a contract before the contract is fully executed).

If the Contractor elects to perform work covered by an SA before it is fully executed, the work will be considered unauthorized as defined in Mn/DOT Specification 1512. See above, Section C Unauthorized Work.

If a MS16A or MS16C violation occurs, the Engineer must complete a **16A.15-16C.05 Violation Form** and submitted with the SA. The Deputy/Assistant Commissioner and Agency Accounting Director signatures are the responsibility of the Office of Construction. This form may be downloaded from the OCIC or the EEO/Contract Management Websites.

E. Payment Options

In Addition to item overruns of Contract Unit prices, Mn/DOT Specification 1904 provides for extra work to be paid for by Negotiated Prices or Force Account.

Negotiated Prices

Pay items that are not contained in the Contract may be paid for using negotiated unit prices as a basis for payment. When negotiated prices are used the Engineer must obtain approval from the Mn/DOT Estimating Unit prior to allowing the Contractor to begin work.

The following criteria are used to justify the negotiated prices:

a) Using average bid prices as documented in the "Average Bid Price For Awarded Project in (year)" from the Mn/DOT Estimating Office.
b) Comparing prices from similar work on the same or an adjacent project.
c) Calculating a price by breaking the operation down into labor, equipment and material costs.

If a subcontractor or specialty contractor performs the work, the Prime Contractor may request a Prime Contractor's Allowance, an additional negotiated overhead cost that is added to the price. This "Prime Contractors Allowance" may not

exceed 10% of the first $10,000.00 (or $50,000 as allowed by Contract Special Provisions) and 2 % of the remaining balance of the work performed by the subcontractor or specialty contractor.

The justification information for all negotiated prices must be included as a part of the transmittal letter for Supplemental Agreements. Assistance and final approval for the negotiated prices is obtained from the Mn/DOT Estimating Office.

If prices cannot be negotiated, the work must be performed in accordance with Mn/DOT Specification 1904 “Extra and Force Account Work”.
Force Account Work

This section is intended to cover the administration of Force Account work. See “Force Account Records and Payments” (CONCHNG-15), and Mn/DOT Specification 1904 “Extra and Force Account Work” for additional information

Force Account refers to the method of accounting and paying for contract work done on the basis of time and materials expended by the contractors’ forces. This method is required when prices cannot be negotiated for extra work performed under Supplemental Agreement or minor extra work authorized by Work Order - MEW.

Basis of Cost Determination:

Material: Materials ordered specifically for the Extra Work: Cost are allowed at the contractor's invoice cost which may include additional costs such as taxes and transportation, if any, plus 15% of that total.

Material the Contractor has on stock not specifically purchased for the work. Costs are allowed if the Contractor will furnish an affidavit certifying that the materials were taken from stock, that the quantity claimed was used, that the material cost is correct, and that transportation costs claimed represent the actual costs to the Contractor.

Labor: The Contractor will receive the actual rate of wage paid for every hour that the employees and foreman are actually engaged in the Force Account work plus the additional costs as provided in the specifications.

Foreman hours: In order to be included in this compensation, the Forman must be in direct charge of the specific operation. If the foreman also supervises other work, the hours will be prorated according to the number of people supervised on each part of the work. The Engineer and the Contractor must agree on the hours worked and document them daily.

Travel and subsistence pay are prorated based on the number of hours worked on the Force Account. The Specifications may also require the Contractor to submit a claim for reimbursement for workers compensation costs that exceed the set standard cost.

Equipment: For any machinery or special equipment authorized by the Engineer, other than small tools, the Contractor will receive the rental rates established in the Commissioner's Equipment Rental Schedule as last issued and currently in effect on the date the Force Account agreement is executed. See "Commissioners Equipment Rental Schedule" below. The Engineer is required to have on file a full description of the equipment being used for the force account work. This description should include measurements to verify compliance.

The hours for equipment should include the time actually worked on the Force Account performed by the Contractor, or a subcontractor. The Contractor will receive payment plus an additional overhead compensation of 10 percent of the first $10,000* plus 2 percent of the balance in excess of $10,000*. Only one overhead allowance is allowed to the Contractor. Specialty Contract work will be paid at invoice price with an overhead allowance for the Prime Contractor as specified in the contract.

*or $50,000 as allowed by Special Provision

Commissioner's Equipment Rental Schedule

The Commissioner's Equipment Rental Schedule specifies using the "Rental Rate Blue Book" volumes 1,2,3 as published by Dataquest, a company of the Dun and Bradstreet Corporation, San Jose, California to determine rental rates. In addition, the Commissioner' Equipment Rental Schedule lists established prices for most truck, tractors, trailer, flatbeds and water trucks. The Mn/DOT Estimating Unit is the authorized unit to use these references to determine the rental rates. Rental rates are established for equipment used to perform Force Account work when prices cannot be negotiated.

The schedule is issued as an Engineering Memorandum generally effective for one year or as specified. However, the memorandum may be superseded if conditions warrant.
Specifications require the contractor to furnish the equipment at the rates established in the Commissioners Equipment Rental Schedule as last issued and currently in effect on the date the Force Account Agreement is executed. The

Applicable rental rates should be determined and understood by both parties at the time the agreement is written.

The following information is necessary to insure the proper rental rate is determined for a piece of equipment:

1. Name and model number of the equipment;
2. Horsepower and type of fuel;
3. Type of tread (wheel or track) or stationary;
4. Capacity in cubic yards, tons or pounds;
5. Accessories;
6. Year of manufacture (or serial number)

Force Account Records and Payments

This section will explain two forms required documenting Force Account Work.

A. Daily Equipment-Labor Record

Mn/DOT's Daily Equipment-Labor Rental form 2137 (9-79) is completed each day labor, equipment, or material is used on the Force Account work. The Engineer and the contractor sign this form after reviewing and agreeing to the information on the daily form. The original form is placed in the project files and the Contractor is given a copy.

The following are instructions on completing the form:

1. Labor: Report the name and position of each individual working on the force account work. The pay rate is taken from the Contractors payrolls when rates are not specified in the Agreement. The overtime hours the employee actually works on the project work is recorded in the overtime column. The Engineer and Contractor should agree daily and record this agreement on the Daily Equipment Labor Rental Record.

2. Equipment: A brief description of the equipment and the rental rate determined by the Mn/DOT Estimating Unit are entered. Only the hours the equipment was actually used for the force account work are entered for each piece of equipment. The additional transportation costs associated with hauling the equipment to the project are entered as a separate line.

3. Materials: All materials used in force account work are recorded daily in the 66 remarks" section of the form. Invoices showing material and associated costs must be attached for documentation.

B. Summary of Daily Force Account

Mn/DOT's Summary of Daily Force Account form TP-21659 (_) is used to summarized all the labor, equipment and material costs recorded on the Daily Equipment-Labor Rental Records after the Force Account work has been completed. Some Contracts may still need the older versions TP-21659 (2-79) or TP-21659 (1-93) form to compute the correct overhead allowances.

The Engineer and the Contractor must sign the original and all copies. The Contractor is given a copy and the original form plus two copies must be submitted to Central Office, Office of Construction and Contract Administration with the final records.

The following are instructions for completing form TP-21659 (____)

1. Labor Section: A separate line is used to total the number of employees, hours, and pay amount for each class of labor with the same pay rate. The total of both regular and overtime hours are multiplied by the regular pay rate to determine the total dollars paid for each class of labor. The amount of overtime-premium pay for all employees is listed as one entry in the bottom portion labeled "Total Overtime". All the wages are then added to get a sub-total of the "taxable wages". When an employee's vacation time is taxed, that vacation time will be considered part of the employee's taxable wages. The specifications provided for an overhead compensation rate to apply to these "taxable wages". After applying the overhead rate, additional labor related costs such as health and welfare, pension funds, fringe benefits, travel, and subsistence are added to get a "Total of "Labor'.

Some older contracts may still require adding all the wages and labor related costs together before applying the overhead compensation percentage rate (use the older form TP-21659 (2-79) to compute these).

2. Materials Section: The materials section is a summation of all the materials costs documented in the remarks portion of the Daily Equipment-Labor Rental Records form. An overhead percentage, as directed in the Specifications, is computed and added to all the material costs to get the "Total of Material".

3. Equipment Section: Show the number of hours each unit of equipment worked on the Force Account, a description of the equipment (including horse power), the rental rate established by the "Commissioners Equipment Rental Schedule" and the total cost of each unit of equipment. The actual cost of transporting equipment other than under it's own power is included as a separate item. No overhead compensation percentage is added to equipment rentals unless provided for in the agreement. A grand total of all units of equipment is ten added to get the Total of Equipment".

4. Specialty Contractor Section: The specialty contract work will be paid for at invoice price with an overhead allowance a specified in the Contract to calculate "Total Specialty Contractor".

5. Miscellaneous Compensation Section: Additional costs such as dump fees, permits, and licenses will be paid for at actual cost. All these additional costs are added to get "Total Misc. Comp".

6. Computation of Contractor Section: When a subcontractor performs work on the force account, the Contractor is paid an additional percentage of the total cost as specified in the Contract for administration and overhead expenses. These amounts are paid only on the work actually done by the subcontractor. All the totals of Labor, Material, Equipment, Specialty Contractor, Miscellaneous Compensation, and Contractor's Allowance are added and entered as "Grand Total". This becomes the full payment amount for the Force Account work.

Specification, special provision or supplemental agreement frequently alters the percentages and dollar amounts shown above. Therefore, they should be reviewed before making this computation.

C. Payment

Payment for work performed under Force Account is made each month in the partial estimates. Supporting records are not submitted with the partial estimates but are submitted with the final record.

Negotiated Contract

A negotiated contract is used in those rare cases where it is in the best interest of Mn/DOT to have additional work performed, but the contemplated work is not essential to completion of the contract. Negotiated contracts are covered in Minn. Stat. 161.32 subd. 2 and are used where the estimated cost of the construction or maintenance work does not exceed $75,000. The Commissioner may enter into a contract for the work by direct negotiation with two or more quotations for the work. The Contract Administration Engineer for Construction and Innovative Contracting should be contacted for any questions or further instructions.

Claims

Specification 1517 "Claims for Compensation Adjustment" covers what the Contractor mast do to seek additional compensation for work or materials not covered by the Contract or ordered as extra work. The Engineer should contact the Claims Engineer in the Office of Construction and Innovative Contracting for assistance on large or controversial claims as soon as possible. The Engineer may want to keep force account type records on the disputed work to verify the validity of the claims. See Federal-aid Projects section for additional claim procedures on Federally funded projects.

Third Party Resolution - Material Testing

Resolving disputes sometimes can be a time consuming process. It is necessary that the quality of products be determined as soon as possible to minimize the risk of producing out of specification material. A timetable for each project should be established for resolution of disputes based on criticality of the item in dispute and the degree of difference between the test results in question. Extremely large variations may be sufficient cause to cease further production until the cause for the discrepancy is found. Limited production may be necessary while corrective measures are pursued. Correction of problems and performance of the final product should be the primary objective of the resolution process. To avoid accusations of bias in resolving difference between parties, the concept of using a third party will be used to resolve these differences. In the technical field of testing, this viewed as identifying and resolving differences obtained using objective measurements rather than a negotiation process. The following are recommended alternatives to the resolution process:

- Use of Mn/DOT Maplewood Construction & Materials Engineer Laboratory (MMC&MEL)

  The third party should not be involved with either the QC or the acceptance processes. The MMC&MEL should be viewed as an “unbiased" source although technically not totally independent of both parties. The MMC&MEL is charged with the development of the IA Program and thus may be in the best position to act as the third party arbitrator. Additionally, the Department has a legal responsibility to decide the acceptability of the material.

- Independent Laboratory Requirements

  If used, a decision must be made with regard to the acceptability of the independent laboratory to both Mn/DOT and the Contractor. It is suggested that a pre-approved list of independent laboratories be established before a project begins. Qualification standards should be established but as a minimum the laboratory will be AASHTO accredited and use testing specialists certified under Department procedures.

  The MMC&MEL will assist in the selection of a specific third party laboratory to avoid a conflict of interest. In cases, where third-party investigations are used, the decision of the selected independent laboratory will have binding effect on the dispute in question.

- Cost of Resolution

  In principle, the determination of "who pays" for the additional testing will depend on the outcome of the final analysis. If the additional testing and investigation indicates that the Department's tests are correct, the Contractor will pay the cost of the investigation. Likewise, if the additional testing and investigation indicates that the Department's tests were not correct the Department will pay the cost of the investigation.

  In the case of the MMC&MEL, acting as the third party, the agency will establish a fixed cost for performing various tests based on historical cost records.

- Split Samples

The use of stored split samples for both Contractor and Department tests should be used when the nature of the material being tested allows. The split sample can be discarded after final determination of payment is agreed upon. Where the use of split samples is not possible or impractical, the dispute resolution investigation will use the best information possible related to the final product quality.

Procedure for Dispute Resolution

In this case the appropriateness of the test method is not in question. However, a comparison of the test results of the Contractor and the Department differs to such a degree that requires consideration of material rejection or correction work, imposition of a disincentive, or denial of an incentive in accordance with schedules established for each particular material and property.

Step 1: Preliminary Project Investigation

The Department has established an ongoing procedure to compare the Contractor QC test results and the Department's test results. This procedure is based upon applying the AASHTO multi-laboratory precision allowances for each test.

When the project level statistical comparison indicates that the Contractor's and Department results as dissimilar, appropriate review of sampling procedure, testing procedures, testing equipment, and computations will be performed by project personnel responsible for Quality Assurance program. The intent of this investigation is to ensure that the proper procedures are followed, equipment is properly calibrated and functioning, and that computational errors are eliminated. If problems are found, corrective action should be taken.

Step 2: Third Party Investigation

When Contractor QC results and Department results are dissimilar and the preliminary project investigation does not identify the reason for the dissimilarity, the situation should be forwarded to the Department's designated third party for a more thorough investigation.

The third party should examine

a) Past similar/dissimilar comparisons for the disputed item to identify any particular trends;
b) The results of the preliminary project level investigation; and
c) The results of the IA Program

The third party should then have referee or "set aside" split samples, or new samples tested to compare with the Contractor and agency's test results.

The results obtained from the referee, split sample or new sample will be judged to determine whether the Contractor or Department's initial test results more accurately represent the particular material property. The third party will then recommend whether to require rejection, corrective work, a disincentive, or an incentive.

Step 3: Board of Dispute Resolution

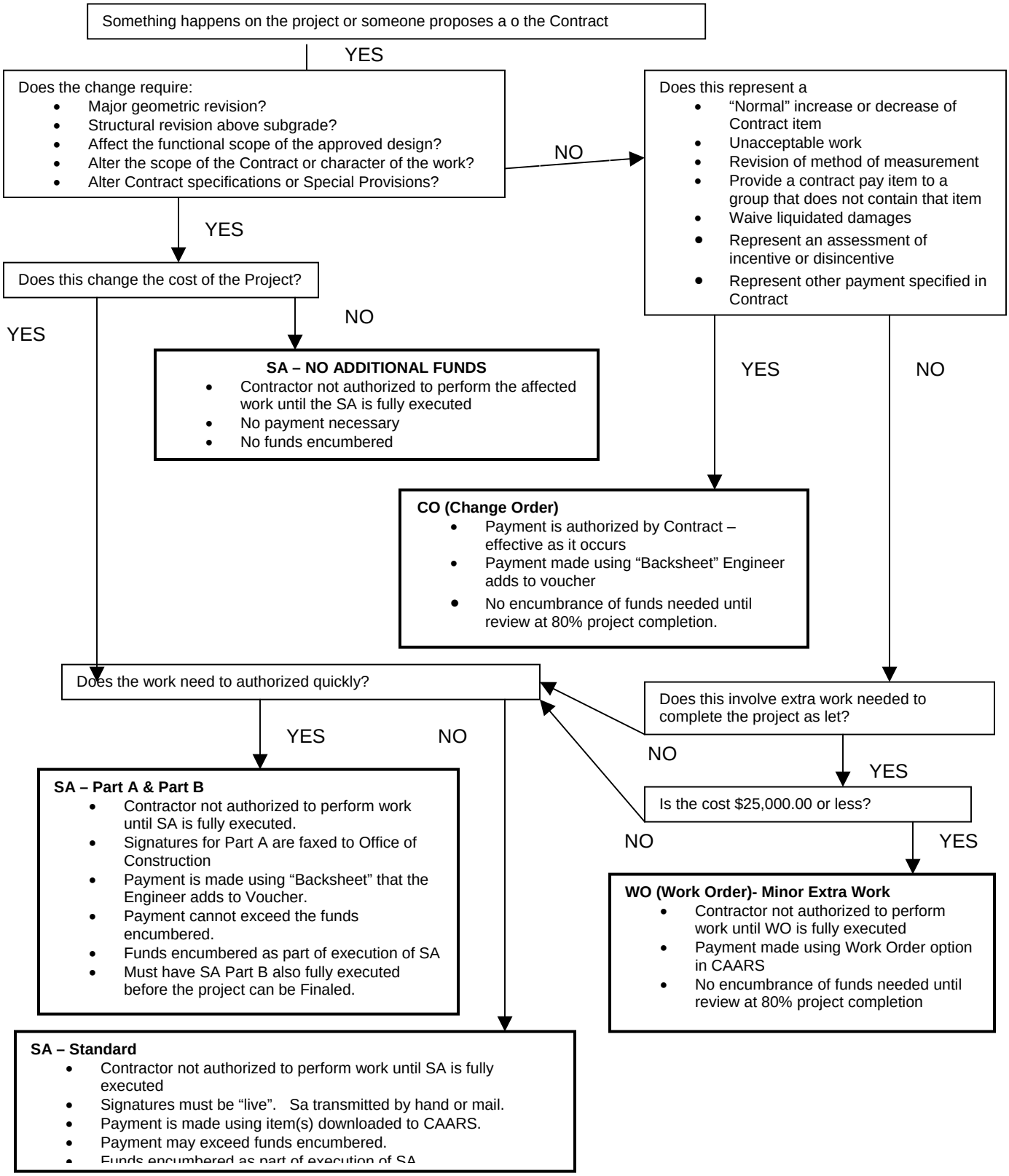
When preliminary project investigation (step 1) and third Party investigation (Step 2) do not resolve the dispute, the Contractor and/or the Department may request a decision by the Board of Dispute Resolution (BODR). Either party may submit a written request to the Director of the Office of Materials and Road Research for review by the BODR. The request must also briefly summarize the dispute. The Director will have the discretion to deny the request for review by the BODR if the request is determined to be without merit based on the findings of Steps 1 and 2.

If the Director approves the request for review by BODR, the Director will convene the group who will be responsible to resolve the disagreement. The BODR will consist of three individuals. The Department will select one member, the Contractor will select one member, and together the Department and Contractor will mutually agree on a third member.

The BODR will review all findings from Steps 1 and 2 to make a recommendation regarding acceptance of the material. The BODR may require Steps 1 and 2, or portions thereof, to be rerun before a final decision is made. Final resolution will be determined by a majority vote of the three individuals. Each individual is required to vote.

The Board of Dispute Resolution will make all attempts to expedite the decision making process, however, insufficient or inadequate information in Steps 1 or 3 may extend this process.

Both parties, regardless of the final decision, will share the cost incurred with establishing the BODR equally.


Something happens on the project or someone proposes a o the Contract
YES
Does the change require:
Major geometric revision?
Structural revision above subgrade?
Affect the functional scope of the approved design?
Alter the scope of the Contract or character of the work?
Alter Contract specifications or Special Provisions?
NO
Does this represent a
"Normal" increase or decrease of Contract item
Unacceptable work
Revision of method of measurement
Provide a contract pay item to a group that does not contain that item
Waive liquidated damages
Represent an assessment of incentive or disincentive
Represent other payment specified in Contract
YES
Does this change the cost of the Project?
NO
YES
SA – NO ADDITIONAL FUNDS
Contractor not authorized to perform the affected work until the SA is fully executed
No payment necessary
No funds encumbered
YES
NO
CO (Change Order)
Payment is authorized by Contract – effective as it occurs
Payment made using "Backsheet" Engineer adds to voucher
No encumbrance of funds needed until review at 80% project completion.
Does the work need to authorized quickly?
Does this involve extra work needed to complete the project as let?
NO
YES
Is the cost $25,000.00 or less?
NO
YES
YES
NO
SA – Part A & Part B
Contractor not authorized to perform work until SA is fully executed.
Signatures for Part A are faxed to Office of Construction
Payment is made using "Backsheet" that the Engineer adds to Voucher.
Payment cannot exceed the funds encumbered.
Funds encumbered as part of execution of SA
Must have SA Part B also fully executed before the project can be Finaled.
WO (Work Order)- Minor Extra Work
Contractor not authorized to perform work until WO is fully executed
Payment made using Work Order option in CAARS
No encumbrance of funds needed until review at 80% project completion
SA – Standard
Contractor not authorized to perform work until SA is fully executed
Signatures must be "live". Sa transmitted by hand or mail.
Payment is made using item(s) downloaded to CAARS.
Payment may exceed funds encumbered.
Funds encumbered as part of execution of SA

Request to Sublet

Specification 1801 "Subletting of Contract" explains the allowable limits and requirements for subletting contract work.

The following are the general procedures for obtaining subletting authorization:

1. At least ten days prior to the proposed work, the Contractor submits a completed Mn/DOT Form 21834 "Request to Sublet" to the Engineer for approval.

2. The Engineer reviews the form for completeness and accuracy.

3. The Engineer approves (Assistant District Engineer or Office of Construction and Innovative Contracting Engineer approval is not required) and notifies the Contractor of the approval.

4. The Engineer submits a copy of the approved form to Contract Administration for record purposes only.

The Engineer is responsible for checking subcontracts for compliance with the requirements of the contract. **A minimum of one subcontract per Federal-Aid project shall be checked for inclusion of federal contract provisions.** The Engineer should be aware that Disadvantaged Business Enterprise (DBE) requirements and designated "specialty items" will impact the percentage of subcontract work. Questions related to the DBE subcontracting rules should be directed to the Mn/DOT Equal Employment Opportunity (EEO) Contract Management Office. Questions relating to other subcontract requirements should be addressed to the Office of Construction and Innovative Contracting, Labor Compliance Unit.

Specialty items are designated during design and will be listed under Specification 1801 in the Contract Proposal. A Contract does not have "specialty items" if these items are not specified in 1801 of the Proposal.

Fund Encumbrances

When a Contract has been officially approved, the funds to cover the Contract amount have been encumbered. This encumbrance is a legal process governed by State laws to insure money has been designated or set aside to pay the contractor. The Engineer cannot issue a partial payment until such time the Office of Construction & Innovative Contracting (OCIC) downloads the original encumbrance to the field, and it is entered into the field computer application. This original encumbrance download will be made approximately three working days after ***Contract Approval.***

In addition to the original encumbrance, the following conditions may need the encumbrance of additional funds.

1. Supplemental Agreements

Supplemental Agreement funds are encumbered at the time the agreement is approved in the Central Office. Funds are encumbered by group number, thus the Engineer must take care to ensure the proper distribution of funds on the Agreement and in subsequent requests for funds to cover over-runs on the agreement. Any additional encumbrance for overruns, claims, etc. because of work performed under the Agreement is addressed below.

2. Anticipated Overrun in Contract Items

When the certified value of work completed on a partial estimate voucher is equal to 80 percent of the total encumbrance to date, the Engineer should review all pay items in the Contract, Supplemental Agreements and Work Orders for Minor Extra Work for over-runs and under-runs. The Engineer should then estimate the final amount of each pay item. If the estimate indicates that the amount encumbered is inadequate to make final payment to the contractor, the Engineer must submit a letter to the Office of Construction & Innovative Contracting (OCIC) Contract Administration Engineer, or the District State-aid Engineer as appropriate, to request an encumbrance sufficient to meet the estimated value of the final payment for each pay group. The OCIC Contract Administration Engineer or District State-aid Engineer will review and approve prior to submitting it to the Department of Finance for encumbrance of additional funds.

In the request for encumbrance of additional funds, the Engineer must list the amount to be encumbered by group. Pay Items documented by Change Order, Work Order-Minor Extra Work and Back Sheet Item entries are considered

overruns and must be included in the request for encumbrance. The Engineer may submit as many requests for encumbrance as are needed.

When the Contract work is completed the Engineer should review the final quantities and determine the amount of excess encumbered funds, if any. A de-encumbrance of any excess funds should be made in the same manner as described for encumbering.

PARTIAL PAYMENT PROCESS

In accordance with Specification 1906 "Partial Payments", at least once a month the Engineer will prepare an estimate of the value of the work completed to date for each Contract item.

Item Record Accounts (IRA's)

Partial payments to Contractors are made based on the pay item quantities that the Engineer has entered on to the IRA's contained in the field computer application. The IRA provides the Engineer with the ability to electronically record and track daily pay item quantity entries as they are measured, documented and become eligible for payment. The first partial payment estimate generated by the Engineer using the field computer application will include payment of all IRA pay item quantity entries made to date. Any successive partial payment vouchers will include payment of all IRA entries made to date, minus all previous payments made.

Original Contract Pay Item IRA's

At the time of ***Contract Award*** a complete set of Item Record Accounts is downloaded to the field computer application for use by the Engineer. This original download includes one IRA for each Original Contract Pay Item for each funding split or Group included in the Contract. The Engineer can immediately make entries and keep track of quantities on these IRA's prior to Contract Approval. However, a valid partial payment voucher cannot be issued until such time OCIC downloads the original encumbrance to the Engineer. This original encumbrance download will be made approximately three working days ***after Contract Approval.*** (For those quantity entries made on IRA's after Contract Award but prior to Contract Approval see Unauthorized Work Specification 1512 paragraph 4).

Back Sheet Pay Item IRA's

Back Sheet pay items are those items that allow for additional payments (or credits) authorized by the Standard Specifications, Special Provisions and other authorizations. IRA's for Back Sheet pay items are not included in the original Contract pay item download. Before the Engineer can make daily quantity entries for partial payment of a Back Sheet pay item, he / she *must first* ***create the IRA's*** in the field computer application.

Once a Back Sheet IRA is created, all entries need to be fully documented by referencing on the IRA the appropriate specification, special provision or other separate document that authorizes the payment or deduction. The following are examples of Back sheet payments or deductions and authorizations:

- Credit (Deduction) for out of tolerance Curb & Gutter as per Standard Specification 2531K (1).
- Water for Dust Control as per Standard Specification 2130.501.
- Items for additional traffic control that may be required as per Special Provision S-___.
- Deduction taken for failing aggregate as authorized by memo from Mn/DOT Bituminous Specialty Office.

A partial payment cannot be made if the amount of the voucher exceeds the amount encumbered to date. When needed, the Engineer must encumber additional funds following the procedures outlined previously in this section.

Note: A ***Partial Payment*** *Voucher that shows a minus dollar figure (Credit owed the State) will require the approval of the Project Activities Supervisor in the Office of Construction & Innovative Contracting before it can be processed. Such approval will be granted only under extreme circumstances.*

When sufficient encumbrance and Contract Approval are in place, a partial payment estimate can be generated by the computer field application at any time during the life of the Contract.

Material on Hand (MOH) Payments

In accordance with Specification 1906 "Partial Payments", a payment may be made for acceptable material produced or furnished as a permanent part of the

work to be completed, provided acceptable provisions have been made for storage.

Materials that have not be delivered to or adjacent to the Project site will be eligible for partial payment only if they were specifically manufactured or produced for the specific Project, and then only after being irrevocably assigned to the Contract.

In case any Vendor claims against the Contractor (for materials so paid for) remain unsatisfied for more than 30 days following issuance of the partial payment voucher to the Contractor, the applicable payment may be canceled on the next partial estimate.

The required invoice, billing, title or assignment documents furnished by the Contractor shall contain complete material description and identification data.

Raw materials stockpiled at production plants or fabrication sites must be stored separately to qualify for partial payment and shall be used only for the assigned Contract.

No MOH payment will be made for living plant materials until planted. {However, note that payment of certain percentages of the bid amount for plants can be made under the provisions of Standard Specification 2571.5 Basis of Payment. (i.e. up to 10% payment can be made upon satisfactory completion of Preparatory Work etc.) }

Contractor produced MOH payments

For those materials produced by the Contractor, the Engineer determines the amount of payment. The Engineer may request the Contractor to submit an itemized list showing the cost of producing the material, or use the following table as a guide, but in no case will the partial payment exceed the value of work it will be used in:

ITEM NO.	ITEM	PERCENT OF BID PRICE OR DOLLAR VALUE
2118	Aggregate Surfacing	40% in stockpile in pit
2211	Aggregate Base	OR
2221	Aggregate Shouldering	65% in stockpile on project
2461	Concrete Sand	$3.75 Ton at batch plant

		$5.25 C.Y. at batch plant $2.00 Ton at producing plant $2.80 C. Y. at producing plant
2461	Concrete Coarse Aggregate	$6.25 Ton at batch plant $8.75 C.Y. at batch plant $4.25 Ton at producing plant $5.95 C. Y. at producing plant
2331, 2341	Bituminous Aggregate	12% in stockpile in pit 20% in stockpile on project

MOH will be paid for as a Back Sheet Item. MOH payments will not be combined or "lumped together" as one MOH payment covering several pay items. (Example: Stockpile for Aggregate Shoulder Class 3, Structural Steel Beams and 12 inch Reinforced Concrete Culvert would require three separate MOH payments.)

The Engineer is responsible for monitoring all MOH payments to assure that payment for such materials is appropriately reduced from the pay voucher as the actual pay items represented by the MOH are being placed and paid for under the Contract items.

Partial Estimate Voucher

After quantities have been entered, the Engineer may print a voucher. However, prior to creating the "Hard Copy " partial estimate it is wise to first create a Draft Partial Estimate for review by both the Engineer and the Contractor. This will allow the Engineer to make any desired adjustments in quantities before submitting to Central Office Construction for payment.

After printing the voucher, the Engineer should review it for accuracy and sign. The Front Face of Partial Estimate Voucher along with the signature sheet is then submitted (along with 2 copies) by Interoffice Mail to**:**

C.O. Office of Construction & Innovative Contracting (OCIC)
Attention Estimate Section
Mailstop 650.

The Estimate Section then checks the Voucher for accuracy prior to submitting it to the Mn/DOT Office of Finance for payment. If the Voucher is not payable as

submitted, the Engineer is notified immediately of any corrective action necessary. It is no longer necessary for the Contractor to sign Partial Estimate Vouchers.

A partial payment may be issued more frequently than monthly at the discretion of the Engineer. There is no minimum dollar limit to the amount paid on partial payment vouchers. Partial payments may be withheld from the Contractor if any required documents in the Contract are delinquent or for other causes discussed in Specification 1906 "Partial Payments".

All payments for surplus materials made in accordance with Specification 1907 "Payment for Surplus Materials" will be listed as nonparticipating for all Federal-aid projects.

FINAL ESTIMATE AND PAYMENT PROCESS

(The term Final as used in this text is construed to mean “Final Voucher and Certificate of Final Contract Acceptance)

Final Vouchers that result in a Credit due the State should be given priority. The Final Voucher and Certificate of Final Contract Acceptance should be completed and mailed to the Contractor as soon as possible after all work is completed.

GENERAL PROCESS

Creating and fully executing the Final Estimate for Payment will be the responsibility of the District /Metro and State Aid Offices.

At the time of completion of all work on the project, the Engineer should pay the Contractor the full amount due for all acceptable work completed, taking into account credit and incentive payments. This reduces the possibility of making interest payments for funds due at the time of final payment. Minnesota Statute 161.322 requires payment of interest to the Contractor on all retained funds determined to be due from the date "the work provided for in the Contract has in all things been completed", unless the final estimate for the work is mailed to the Contractor within 90 days after the Contractor has so completed the work. If there are any Liquidated Damages see Section 5-591.340.

It will not be necessary for the Engineer to make a partial payment estimate just prior to producing the Final Voucher unless the amount due the Contractor prior to Final exceeds $5000.00. However, this does not prevent the Engineer from making such a partial payment for less then the $5,000.00 if he/she desires to do so. Once the Final Voucher is received by the Office of Construction it will only be approx. 4 working days in process before the Contractor will receive final payment.

PRODUCING THE FINAL VOUCHER PACKAGE

At the time of Final, the field computer application will print all the documents that are necessary to produce the Final Voucher package sent to the Contractor for signature. The following documents are automatically printed with correct number of copies.

1. The Complete Final Voucher
2. The Certificate of Final Contract Acceptance (Sample **A** at end of Section)
3. The Contract Requirements Letter (2 pages) (Sample **B** at end of Section)
4. The Credit Letter (If Applicable – This letter will only print out when Contractor owes money to the State on Final Voucher) (Sample **C** at end of Section)

Special Note: – Mn/DOT Finance will not bill a Contractor for less than $5.00. If you are in this situation you will have to cross out and initial the Credit Amount shown on the computer generated Requirements Letter and add the a statement "Credit Waived". Also discard the computer generated Credit Letter completely; **Do not send Credit Letter to Contractor**.

5. Final Voucher Date Tracking Form (Sample **D** at end of Section)
6. Final Contract Time Certification Report & Final Contract Date Log (See section **5.591.340** for specific instructions and Sample's **H & I**. also in section **5.591.340**

The field computer application will automatically pre-head all the above documents with the correct State Project Number and other pertinent Contract information. The Contract Requirements Letter will automatically include all those documents that are not yet received from the Contractor and must be submitted to the Engineer within 90 days in order to fulfill all of his Contract requirements. The *Credit Letter (If any) will automatically show the dollar amount due the State on the Final. * (See Credit Due on Final Voucher ahead in this text)

PROCEDURE FOR ASSEMBLING THE FINAL VOUCHER PACKAGE THAT IS SENT TO THE CONTRACTOR VIA CERTIFIED MAIL

The field computer application will automatically print and pre-head all of the required documents necessary to create the Certified Mail package sent to the Contractor for signature. All of the documents that go into the **To Contractor** package are listed in **bold**. All other copies of letters printed by the computer application along with proper distribution are listed in *italics.*

(a)- Two (2) copies of the Final Voucher with Certificate of Final Contract Acceptance signed by the Engineer and stapled to front of each Voucher. both documents require original signatures.

One (1) document for the Contractor to sign and retain for his files.

One (1) document that the Contractor will sign and return to the Engineer.

(b)- One (1) copy of the Contract Requirements Letter signed by the Engineer, which the Contractor will retain in his files.

One (1) copy of Requirements Letter stays in Engineers Office files.

One (1) copy of Requirements letter is sent to (OCIC)*stapled to (1) copy of the face of the Final Voucher. (This is sent immediately to the Office of Construction at the same time as Certified Mail package goes to Contractor.)*

(c)- **One (1) copy of *Credit Letter (if applicable) signed by the Engineer which the Contractor will retain in his files. (** *The Credit Letter will only be generated when the Contractor owes the State money on the Final Voucher; also see below "Procedures to use when there is a Credit Due on Final Voucher ")*

One (1) copy of the Credit Letter stays in Engineers Office files.

Two (2) copies of the Credit Letter are sent to the Office of Construction stapled to two (2) copies of the face of the Final Voucher. (This is sent immediately to the (OCIC)*in the same envelope as the Contract Requirements Letter above.)*

Once all of the above (a) through (c) is assembled the Final is ready to be sent to the Contractor via Certified Mail. Starting with the date this package is mailed along with all other pertinent dates will be entered on the *Final Voucher Date Tracking Form* as they occur. (See below and also Sample Copy Figure **D** at the end of this section.)

***Final Voucher Date Tracking Form* .**

This form will be automatically produced for your use by the field computer application at the same time as the Final Voucher is produced. (Form is also available on website http://www.dot.state.mn.us/const/mainforms.html)

It will be the Engineers responsibility to chronologically track the progress of each Final Voucher by entering all of the individual dates requested on the form. This will allow the Engineer to adequately monitor the 90 day time period allowed the Contractor to sign the voucher as provided by Minn. Statute 161.34. (shown below). All dates shown on the Final Voucher Date Tracking Form are critical and must be completed *prior to* following the instructions listed below under **" Submittal of Final Voucher Package to District Engineer for Signature".**

Proper use of the Final Voucher Date Tracking Form will assure that Minn. Statute 161.34 ;161.32 along with all other *Special Contract Requirements* required of the

Contractor (shown below) have been met and adhered to prior to fully executing the Contract.

MONITORING PROGRESS / STATUS OF THE FINAL PACKAGE AFTER IT IS MAILED TO THE CONTRACTOR.

After the Contractor receives the Final via certified mail he is allowed 90 calendar days (including Saturdays , Sundays and Holidays) to return the signed copies of the Final Voucher and Certificate of Final Contract Acceptance back to the Engineer. **(see below Requirements of Minnesota Statute 161.34).** The **"Date of Delivery**" shown on the returned certified mail stub to the Engineer will be recorded in Box **(A)** of the Final Voucher Date Tracking Form; this is the date that starts the 90 day period counting the day following the "*Date of Delivery*" as the first day. The computer application will automatically compute the expiration date of the 90 day period. The Engineer will enter this date in Box **(B)** on the Final Voucher Date Tracking Form.

Requirements of Minnesota Statute 161.34

In accordance with Minnesota Statute 161.34, the Contractor has 90 calendar days (including Saturdays, Sundays and Holidays) from date of receiving the Final Voucher via Certified Mail, to approve, sign and return same to the Engineer. Prior to the expiration of the 90 day period the Contractor must notify the Engineer of incorrect payments,(if any), take legal action against the Department in the event of an un-resolvable dispute or, if the Final Voucher is acceptable, sign and return to the Engineer. There are only 2 ways to stop the 90 day time limit from expiring. (1)- The Engineer formally recalling the Final Voucher, or (2)- The Contractor pursues a claim in which case he must file a lawsuit against the State before the expiration of the 90 day time limit. If the Contractor signs the Final Voucher Certificate of Final Acceptance at any time prior to the 90 day expiration date he has waived his right to make any further claim for additional compensation, and the balance of the 90 days becomes void.

Voucher Recall / Remake - If the Engineer concurs with the Contractors notification of incorrect payment in above paragraph, he/she **must** notify the Project Activities Supervisor in the (OCIC)who will immediately send out a formal Final Voucher Recall Letter. In order to be valid, all voucher recalls must come from the Central Office of Construction. This formal recall letter **voids** the original Final in the Contractors hands, and is the **only** way that prevents the 90 day time limit from expiring. (Sample **E** Recall Letter shown at end of this Section).

Once the recall letter is in the mail to the Contractor from (OCIC) the Engineer will then make appropriate corrections and submit a new remade Final Voucher via certified mail to the Contractor for signature and start a **new** 90 day time period. In the event the Contractor has taken legal action, (OCIC)will recall the Final and remake as determined by court decision or other resolve.

Whenever the 90 day time limit is expired, and no action has been taken by the Contractor to dispute quantities or file legal action , the Engineer will call the Contractor and inform him that he must submit the Final immediately or be in violation of **Minn. Statute 161.32.** Consequenses to the Contractor for violation of this Statute *may* include being put on the Reject Bid list by (OCIC). When this situation occurs, you must contact the Project Activities Supervisor in (OCIC). **Only** (OCIC) has the authority to place a Contractor on the reject bid list.

After expiration of the 90 day period provided by Statute, a Final Voucher **can not** be recalled or remade, and absolutely no change may be made to the Final Voucher by either party to the Contract.

When the Contractor has signed the Final Voucher he will return one (1) copy with original signatures to the Engineer.

Special Contract Requirements Subject to the Contractors 90 Day Time Limit

Also addressed on the Final Voucher Date Tracking Form are the Special Contract Requirements the Contractor must meet. The Contractor must submit the following to the Engineer before the 90 day expiration date:
1- Minnesota Department of Revenue Form IC- 134 -Tax Withholding Affidavit for Contractors. (Sample **F** shown at end of this section)– Only the Prime Contractor's IC-134 must be submitted with the Final

As per **Minnesota Statute 290.92 & 290.97** the IC-134 must be certified by the Minnesota Department of Revenue before the State can make final payment for the work performed on a contract. In reviewing the IC-134 submitted by the Prime Contractor, the Engineer must make certain that the *"Month/Year Work Ended"* shown on the form covers the time period up to the completion of actual work on the Contract. If the *"Month/Year Work Ended"* does not cover this time period the Engineer must request a new IC-134 from the Contractor that reflects the proper dates.

If the District Engineer signs the Certificate of Final Acceptance **prior** to the IC-134 form being received by the Engineer MN Statute 290.97 has been violated. Be aware that after(OCIC)receives the fully executed Final Voucher, it is too late to rectifiy this situation. Therefore it is extremely important that the Engineer not submit the Final Voucher to the District Engineer for signature prior to receiving a valid IC-134 Form.

2- **Federal Form FHWA PR-47** - **Statement of Materials and Labor used by Contractors on Highway Construction Involving Federal Funds**. (Sample **G** shown at end of this section)

The Mn/DOT Office of Finance and FHWA will accept a photo copy of the original PR-47 provided it contains original signatures. Final payment or close-out of a Contract will not be made until this document is received by them.

The Contractor must submit this form to the Engineer within the 90 day period mentioned above. The PR-47 will then be submitted to (OCIC)with the Finals packet.

If the Contractor does not submit either the above IC-134, PR-47 or does not submit **payment of a Credit Due** (See below Credit due on Final Voucher) to the Engineer before expiration of the 90 day period provided by **Minn. Statute 161.34,** he is in violation of **Minn. Statute 161.32.** Consequenses to the Contractor for violation of this Statute *may* include being put on the Reject Bid list by (OCIC). When this situation occurs, contact the Project Activities Supervisor in (OCIC). **Only** (OCIC) can place a Contractor on the reject bid list.

Other Special Contract Requirements that are included on the Final Voucher Date Tracking Form are the **Engineers responsibility** to submit to (OCIC) with the Final records. These are covered under Section 5-591.410 of this manual and include:

A) - Materials Certification Exception Form
B) - Final Project Inspection Report from the OCIC Project Review Engineer. (or the Area FHWA Construction Engineer for FFO projects).
C) - Overrun and Underrun Report (Only required on Contracts designated as **FAP; FFO; SAFO and MAP).**

Procedures to use when there is a Credit Due on the Final Voucher

If there is a Final Voucher with a Credit due the State, the payment of the Credit by the Contractor becomes an additional Contract requirement that must be met by the Contractor prior to the expiration of the 90 day time period.

Special Note: – _Mn/DOT Finance will not bill a Contractor for less than $5.00. If you are in this situation you will have to cross out and initial the Credit Amount shown on the computer generated Requirements Letter and add the statement "Credit Waived". Also discard the computer generated Credit Letter completely, **Do not send Credit Letter to Contractor in Final Package.**.

Whenever a Credit due the State occurs on a Final Voucher, the field computer application will automatically calculate the amount due and create a Credit Letter that will be sent to the Contractor with the Final Voucher in the certified mail package. At the same time the field computer application will produce three (3) additional copies of the credit letter that will be distributed in the following way:

One (1) copy of the Credit Letter will be retained in the Engineers files.

Two (2) copies of the Credit Letter each stapled to the front sheet (face) of the Final Voucher will be sent immediately to (OCIC) @ Mailstop 650 C.O. on the same day as the Certified Mail Package is sent to the Contractor.

When the Final Voucher is returned signed from the Contractor, the Engineer will then **Hold** the Final in his/her office until the Credit is paid and released by (OCIC) **The Engineer will not send the Final to the District Engineer for signature until the Hold is released.** When the Credit Hold is released, you will be notified by (OCIC)the Engineer will then enter this release date in box **J** on the Final Voucher Date Tracking Form**.**

Submittal of Final Voucher Package to District Engineer for Signature.

IMPORTANT / CAUTION: The Engineer must make certain that **all** date boxes **A** through **K** shown on the Final Voucher Date Tracking Form (including Special Contract requirements (i.e. IC-134 , PR-47 etc.) are addressed with either a date entered or an N.A. for non-applicable. This must be done **prior** to the signing by the District Engineer for Construction. A copy of the Final Voucher Date Tracking Form will be attached to the front of the Final Voucher submitted to the District Engineer for signature . Upon signing by the District Engineer the Contract becomes **fully executed** and no change can be made to the Final by either party to the Contract.

After all Contract Requirements have been met and addressed the Engineer will submit the following package to the District Engineer for signature:

One (1) copy of the original signature Final Voucher and Certificate of Final Contract Acceptance attached to One (1) copy of the completed Final Voucher Date Tracking Form.

District Engineers for Construction are advised that they should not sign the Certificate of Final Contract Acceptance submitted to them unless all dates required on the Final Voucher Date Tracking Form are addressed by the Engineer.

After the District Engineer signs the Final Voucher he/she will return to the Engineer the fully executed original signature signed Final Voucher and Certificate of Final Contract Acceptance with the Final Voucher Date Tracking Form attached.

The Engineer will then make two (2) additional complete copies of the original signature Final Voucher and Certificate of Final Contract Acceptance. One (1) copy for his files. The original signature Final Voucher and the one (1) remaining copy will be submitted with the Final package to the C.O. Office of Construction & Innovative Contracting with one (1) copy of the Final Voucher Date tracking Form attached to the original signature copy. The Engineer will then assemble the entire Final packet and supporting

documentation for submittal to the C.O. Office of Construction & Innovative Contracting (See Section 5-591.410 on documents that are included with the Final Packet).

When the Final packet is completed it is sent to the C.O. Office of Construction & Innovative Contracting who will immediately pass the fully executed Final **"as–is"** to the Mn/DOT Office of Finance where final payment will be made. After OCIC receives the Final the total process will take approximately 4 working days to process through Finance and issue payment to the Contractor.

LABOR HOLDS

If there is a Labor Hold(s) on a project the Engineer will be notified by letter from the Mn/DOT Labor Investigation Unit. When the Contractor signs and returns the Final Voucher**, any Final that has a Labor Hold(s) will be held in the Engineers office, and not submitted to the District Engineer for signature until such hold(s) is released by letter from the Labor Investigation Unit.** The Engineer will enter the release date of the Labor Hold in Box **" l "** of the Final Voucher Date Tracking Form. (See Sample's **"Hold"** and **"Release"** at the end of this section for sample labor hold and release letters.) Information on Labor Holds can be viewed in view Contract Management System (CMS) under the HOLD tab .

If all other Contract Requirements have been met at the time the Final is ready to go to the District Engineer for signature, and the Engineer has **not as yet** received a Labor "Hold" letter, the status shown on the Final Voucher Date Tracking Form will indicate N/A (Non-applicable), and the Final sent to the District Engineer for signature.

NOTE: During the entire Field Final process and prior to submittal to (OCIC) the Engineer may want to use the "**Checklist for doing Final in Field**" at the end of this section as a guide.

STATE OF MINNESOTA - DEPARTMENT OF TRANSPORTATION
CERTIFICATE OF FINAL CONTRACT ACCEPTANCE

LOW S.P. NO. 2401-36 FINAL VOUCHER NO. 3 CONTRACT NO. M03102

This is to certify that to the best of my knowledge, the items of work shown in the Statement of Work Certified herein have actually furnished in accordance with the Plans and Specifications. This Project has been completed in accordance with the Laws, Standards a Procedures of Minnesota as they apply to projects in this category, and if applicable, approved by the Federal Highway Administratio

Dated 3/10/04 Signature _____ Project Engineer

****

The undersigned Contractor hereby certifies that the work described has been performed in accordance with the terms of the Contract, and agrees that the Final Value of Work Certified on this Contract is $247,394.21 and agrees to the amount of $0.00 as Final Payment on this Contract in accordance with this Final Voucher.

Contractor ULLAND BROTHERS INC By Kenneth H. Johnson

And _____ And Murray K. Srock

State of Minnesota, County of FREEBORN

On This 20TH Day APRIL, 2004. Before me appeared _____ To me known t

(Individual Acknowledgment)

be the person who executed the foregoing Acceptance and Acknowledged that he/she executed the same as _____ free to act and deed

(Corporate Acknowledgment)

KENNETH H. JOHNSON And MURRAY K. SROCK, to me personally known, who, being each by me duly sworn each did say that they are respectively the VICE PRESIDENT and ASST. SECRETARY of the ULLAND BROTHERS, INC. Corporation named in the foregoing instrument, and that the seal affixed to said instrument is th Corporate Seal of said Corporation, and the said instrument was signed and sealed in behalf of said Corporation by authority of it's BOARD OF DIRECTORS and said KENNETH H. JOHNSON and MURRAY K. SROCK acknowledged said instrument to be the free act and deed of said Corporation.

DONNA A. LAHANN
NOTARY PUBLIC-MINNESOTA
My Commission Expires Jan. 31, 2005

My Commission as Notary Public in MOWER Count

Expires JANUARY 31, 2005 Signature Donna A. Lahann

****

I hereby certify that a Final Examination has been made of the noted Contract, that the Contract has been completed, that the entire amount of Work Shown in this Final Voucher has been performed and the Total Value of the Work Performed in accordance with, the terms of the Contract is as shown in this Final Voucher.
This Contract is hereby accepted in accordance with the Specification 1516. Final acceptance of the Contract will be effective upon full Execution, by the Contractor and the Department, of the "Certificate of Final Acceptance" included with the Final Voucher.

Dated 5/3/04 Signature _____ for District Engineer

SAMPLE "A"

Contractor Requirements Letter 1 of 2

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

RE: S.P. No. : 8580-0122
Contract No. : S94192
Location : TH 56 IN INVER GROVE HTS. FROM JCT TH 52 TO DAK. CO. 26

Attention: BUILD RIGHT CONSTRUCTION

Enclosed for your review and approval are two copies of the Final Voucher and Certificate of Final Contract Acceptance on the above referenced project. This certificate requires the signature of an an authorized official of your firm on this Contract and notorization.

The Vouchers were sent by certified mail and you signed and dated a postal certificate acknowledging receipt of same. The date entered on the certificate is the date that begins the ninety (90) day statutory deadline, (Minn. Stat. Section 161.34), for initiating claims against the State arising out of Contracts. You are advised that any claims against the State for additional compensation on this Contract, or for corrections to this Final, must be resolved, or legal action must be taken prior to the expiration of the 90-day period.

The Final Acceptance of this Contract and Final Payment cannot be approved until all of your Contract Requirements have been satisfied. As of the date of this transmittal, we have not received the following:

- **A signed copy of the Final Voucher**
- **IC 134 Withholding Tax**
- **A Credit Payment of $-70,712.95**
- **Pr 47**

Failure on your part to submit the Contract Requirements before expiration of the 90 day period as referenced above, may result in the Department rejecting any future bids you may make, in accordance with Minn. Stat. Section 16b Subd. 3, or 161.32 Subd. 1d, and, in addition, we may withhold payments on other Contracts you may currently have until the requirements have been satisfied.

If the Requirements listed above indicate a Credit Payment is due, you will receive a separate letter along with an invoice from the Department's Accounts Receivable Office. Please submit the payment in accordance with the invoice.

SAMPLE "B" – Page 1

Contractor Requirements Letter 2 of 2

Please retain one copy of the Final for your records. Sign and return the other copy to the following address:

South East Metro Construction
2229 Pilot Knob Road
Mendota Heights MN 55120

A copy of the Certificate of Final Contract Acceptance will be provided to you and your Surety subsequent to full execution.

Any questions you may have pertaining to pay quantities or corrections should be addressed to the Project Engineer.

Sincerely,

_____
GUS WAGNER
Project Engineer

cc: Engineer File
Office of Construction

SAMPLE "B" – Page 2

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

Credit Letter

BUILD RIGHT CONSTRUCTION
3912 66TH ST.

INVER GROVE HTS MN 55076

RE: S.P. No. : 8580-0122
Contract No. : S94192
Location : TH 56 IN INVER GROVE HTS. FROM JCT TH 52 TO DAK. CO. 26

Attention: BUILD RIGHT CONSTRUCTION

This Final provides for a Credit Payment of $-70,712.95.

Subsequent to your review and approval of the Final, please submit this payment in accordance with the invoice you will receive, under a separate transmittal, from the Mn/DOT Office of Finance. As explained in the Contract Requirements letter accompanying this Final, this Payment must be made within 90 days after you receive this Final.

Sincerely,

GUS WAGNER
Project Engineer

cc: Engineer File
Office of Construction (2)

SAMPLE "C"

FINAL VOUCHER DATE TRACKING FORM

ATTENTION - DISTRICT ENGINEERS: District Engineers are advised **NOT** to sign the attached Final Voucher Certificate of Final Contract Acceptance unless all date boxes are completed with a date filled in or marked N/A (Not Applicable). This will serve as your assurance that Minnesota Statutes 161.34 and 161.32 have been observed by the Project Engineer, and that all Special Contract Requirements have been met. Once you have affixed your signature to the Certificate of Final Contract Acceptance, no changes can be made to this Contract.

PROJECT ENGINEERS: PLEASE REFER TO THE CONTRACT ADMINISTRATION MANUAL SECTION 5-591.370 BEFORE ATTEMPTING TO COMPLETE THIS FORM.
(Note: This form can be filled in by hand)

S.P. Number: 0209-0022 Entered by (Contact Person) EILEEN NORENBERG
Telephone # (763) 797-3074

Date Certificate of Final Acceptance signed by Engineer and sent to Contractor Certified Mail:	2/18/04
Date Final Received by Contractor (*"Date of Delivery"* shown on Cert. Mail Green Card)	(A) 2/19/04
Date Due Back From Contractor [(B) = (A) plus 90 Cal. Days] = Expiration Date (Includes Sat., Sun. & Holidays)	(B) 5/19/04
Date Signed Final Received Back in Eng. Office From Contractor	4/7/04

SPECIAL FINAL REQS - DATES RCVD FROM CONTRACTOR OR COMPLETED BY ENGINEER

IC-134 Tax Withholding:	Federal Form PR-47:	Materials Cert. Excep. Summary Form	Final Inspection by Const. Standards Eng.	Labor Holds Released	Credit Hold Released	O/U Letter
4/7/04	N/A	4/28/03	N/A	N/A	N/A	N/A
(E)	(F)	(G)	(H)	(I)	(J)	(K)

BEFORE SUBMITTING THIS FINAL TO THE DISTRICT ENGINEER FOR SIGNATURE ALL ABOVE DATES MUST BE ENTERED ON THIS FORM OR HELD IN THE ENGINEER'S OFFICE UNTIL RESOLVED. ALL DATES THAT DO NOT APPLY MUST BE MARKED N/A (Not Applicable).

SPECIAL NOTES:

Box(A) - The Certified Mail stub (Green Card) returned to the Engineer is official acknowledgement that the Contractor has received the Final Voucher and Certificate of Final Acceptance. The ***"Date of Delivery"*** shown on the stub is the date that is entered in Box(A)

& 161.32)

Manual 5-591.370 - *Requirements of Minnesota*

red by Minnesota Statutes 290.97 & 290.92.

ontract Administration . If it is

ies Supervisor (See voucher

RETURNED SHOWING
UST BE STAPLED HERE
ECORDS

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Ames Construction
2000 Ames Drive
Burnsville, MN 55306
S.P. 0209-22

COMPLETE THIS SECTION ON DELIVERY

A. Signature X Susan Rue ☐ Agent ☐ Addressee

B. Received by (Printed Name) S. Rue C. Date of Delivery 2-19-04

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☒ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7000 1670 0005 7668 8885

PS Form 3811, August 2001 Domestic Return Receipt 102595-02-M-1540

SAMPLE "D"

08/05/2002

BENJAMIN, ELIZABETH
2055 LILAC DR.
GOLDEN VALLEY, MN 55422

Re: S.P.# 0205-0075
Prime Contractor PARK CONSTRUCTION CO.

Dear ELIZABETH BENJAMIN,

A case file has been opened for the above referenced project. Please note that a labor hold on the final payment is automatically assigned to this case file until the investigation is completed. The hold will be removed when the case file has been successfully resolved.

If you have questions, please call me at (651) 297-1234

Sincerely,

Bob Richards
Mn/DOT Labor Investigation Unit

cc: Assistant District Engineer - Construction
Construction Office Manager
File

Sample – Labor **"HOLD"** letter

08/05/2002

BENJAMIN, ELIZABETH
2055 LILAC DR.
GOLDEN VALLEY, MN 55422

Re: S.P.# 0205-0075
Prime Contractor PARK CONSTRUCTION CO.

Dear ELIZABETH BENJAMIN,

The case file assigned to this project has been successfully resolved. Therefore, the labor hold on the final payment has been removed.

If you have questions, please call me at (651) 297-1234

Sincerely,

Bob Richards
Mn/DOT Labor Investigation Unit

cc: Assistant District Engineer - Construction
Construction Office Manager
File

Sample – Labor **"RELEASE"** Letter

OMB NO. 2125-0033

U.S. Department of Transportation
Federal Highway Administration

STATEMENT OF MATERIALS AND LABOR USED BY CONTRACTORS ON HIGHWAY CONSTRUCTION INVOLVING FEDERAL FUNDS

ALL — To be completed by Washington Headquarters Personnel

PART A To be completed by FHWA or State Highway Personnel (See instructions on reverse)

STATE	COUNTY	FEDERAL PROJECT NO.*	URBAN / RURAL
MINNESOTA S.P. 2771-12	HENNEPIN	DPI 0081 (016)	URBAN (X) RURAL ( )

ITEM	DESCRIPTION		ROADWAY	BRIDGE (Over 20 ft)	
	CONSTRUCTION TYPE CODES				DATE STARTED* 6-20-97
1	LENGTH OF PROJECT	MILES	2077.606 METERS		DATE COMPLETED* 5-25-99
2	FINAL* CONSTRUCTION COST	DOL	$10,528,224.02		TOTAL NO. BRIDGES

PART B To be completed by; contractor – see instructions on reverse (REMARKS Attach a plain sheet of paper)

ITEM	DESCRIPTION	TOTAL LABOR-HOURS	GROSS EARNINGS
3	LABOR* TOTAL PROJECT	71,192	2,241,798.00

ITEM	DESCRIPTION	UNIT	PROJECT QUANTITY
4	TOTAL COST OF ALL MATERIALS & SUPPLIES*	DOL.	4,177,118
5	PETROLEUM PRODUCTS*	GAL.	322,940
6	CEMENT	~~BBL.~~ TON	3,968
7	CEMENT	LB.	
8	AGGREGATES PURCHASED	TON.	26,485
9	AGGREGATES PURCHASED	CU. YD.	257,579
10	BITUMINOUS MATERIAL	GAL.	26,729
11	LUMBER	THSD. BD. FT.	
12	REINFORCING STEEL	~~LB.~~ KG	231,125
13	STRUCTURAL STEEL	LB.	
14	READY-MIXED CONCRETE	CU. YD.	7,270
15	PREMIXED BITUMINOUS PAVING MATERIALS	TON.	28,016
16	AGGREGATES PRODUCED	TON.	
17	AGGREGATES PRODUCED	CU. YD.	
18	MISCELLANEOUS STEEL	LB.	519,289
19	NOISE BARRIERS	LIN. FT.	
20	GUARDRAIL	~~LIN. FT.~~ M	616
21	BRIDGE RAIL	~~LIN. FT.~~ M	501
22	FINAL CONTRACT AMOUNT FOR SIGNS	DOL.	70,411
23	FINAL CONTRACT AMT. FOR LIGHTING	DOL.	220,902
24	FINAL CONTRACT AMT. FOR TRAFFIC SIGNALS	DOL.	206,610

CULVERT ITEMS

25 CORR. STEEL CULVERT

SIZE (in.)	LGTH (Lin ft)
15	505
18	259

26 CONCRETE PIPE

SIZE (in.)	LGTH (Lin ft)
15	3,311
18	1,538
21	270
24	1,459
27	365
29	881
30	367
36	615
42	1,490
44	346
48	2,417
60	804

27 CLAY PIPE

SIZE (in.)	LGTH (Lin ft)

28 CORR. ALUMINUM CULVERT

SIZE (in.)	LGTH (Lin ft)

29 PLASTIC PIPE

SIZE (in.)	LGTH (Lin ft)
15	180

Blocks 48– 70 to be completed by FHWA Washington Headquarters Personnel

*MUST BE REPORTED ON ALL REPORTS   REVIEWED BY   DATE:

FORM FHWA-47 (Rev. 6–90) PREVIOUS EDITIONS ARE OBSOLETE

This section to be completed by Project Engineer. DATE FHWA-47 RECEIVED FROM CONTRACTOR: DATE 7/03/02 S.P. 2771-0012

SAMPLE "**G**" – Federal Form PR-47

JUL 24 2000

MINNESOTA Department of Revenue

Withholding Affidavit for Contractors

IC-134

This affidavit must be approved by the Minnesota Department of Revenue before the state of Minnesota or any of its subdivisions can make final payment to contractors.

Please type or print clearly. This will be your mailing label for returning the completed form.

Type or print

Company name	Daytime phone	Minnesota withholding tax ID number
Mankato Electric, Inc.	(507) 345-3269	6796755
Address	**Total contract amount**	**Month/year work began**
P O Box 3124	$ 469507.95	March 2000
City / State / Zip Code	**Amount still due**	**Month/year work ended**
Mankato MN 56002-3124	$37416.00	June 2000

Project information

Project number	Project location			
SP #2514-100	TH 61	Red Wing	MN	55066
Project owner	**Address**	**City**	**State**	**Zip code**
MN DOT	5420 Hwy 61 West	Winona	MN	55987

Did you have employees work on this project? [X] Yes [ ] No If no, who did the work?

Contractor type

Check the box that describes your involvement in the project and fill in all information requested.

- [ ] **Sole contractor**
- [ ] **Subcontractor**

Name of contractor who hired you

Address

- [X] **Prime contractor**—If you subcontracted out any work on this project, all of your subcontractors must file their own IC-134 affidavits and have them certified by the Department of Revenue *before* you can file your affidavit. For each subcontractor you had, fill in the information below and attach a copy of each subcontractor's certified IC-134. If you need more space, attach a separate sheet.

Business name	Address	Owner/Officer
Ti-Zack Concrete, Inc.	Rt 2 Box 182 LeCenter MN 56057	Steve J. Rutt

Sign here

I declare that all information I have filled in on this form is true and complete to the best of my knowledge and belief. I authorize the Department of Revenue to disclose pertinent information relating to this project, including sending copies of this form, to the prime contractor if I am a subcontractor, and to any subcontractors if I am a prime contractor, and to the contracting agency.

Contractor's signature | Title: Vice-president | Date: 7-17-00

Mail to: MN Dept. of Revenue, Withholding Division, Mail Station 6610, St. Paul, MN 55146-6610

Certificate of Compliance

Based on records of the Minnesota Department of Revenue, I certify that the contractor who has signed this certificate has fulfilled all the requirements of Minnesota Statutes 290.92 and 290.97 concerning the withholding of Minnesota income tax from wages paid to employees relating to contract services with the state of Minnesota and/or its subdivisions.

Department of Revenue approval: Victoria Vickerson (CO) Date: JUL 25 2000

Stock No. 5000134 (Rev. 11/96)

Printed on recycled paper with 10% post-consumer waste using soy-based ink

SAMPLE **"F"** – Minn. Revenue Form IC-134

CHECKLIST FOR DOING FINAL IN FIELD

Detailed Instruction are included previously in this section of the Manual.

The Final Voucher is the most important part of doing the Final in the field. If the Final voucher you submit to the C.O. Office of Construction & Innovative Contracting (OCIC) is incorrect it will cause extra work to all concerned The first steps 1 -6 will help you accomplish creating a "clean" voucher.

Create Draft Final Voucher First

1. Run the Draft Final Voucher first and review it carefully for correctness (Especially Front Page). Make certain that Liquidated Damages (if any) are deleted on any back sheets and correctly shown on Front Page.
2. Make sure encumbrance is sufficient to create Final Voucher.
3. Make sure that the Fed Non Part dollars are correct on Front Page.
4. Check the Value of Work Certified columns with previous partial estimate to make sure they match. They must match or Mn/DOT Finance will not process.
5. Make certain the final voucher # is correct, Mn/DOT Finance will not accept voucher with incorrect #.
6. It's a good idea to review Draft Final Voucher with the Contractor if possible before running Final Voucher. This avoids Re-Makes

Preparing Certified Mail Package to Send Final Out to Contractor

7. Run the hard copy Final Voucher that will produce all of the required letters needed for the Final Package.
8. Make 1 additional photocopy of the complete Final Voucher.
9. **Immediately** - Make 1 copy of the Front sheet of the Final Voucher (which is the 1st voucher sheet following the Certificate of Final Contract Acceptance cover sheet) and staple it to a copy of the 2 page Contract Requirements Letter and send immediately inter-office to the Office of Construction & Innovative Contracting Mailstop 650 attention Estimate Section.
10. ****Immediately -** If there is a Credit letter make 2 copies of the Front sheet of the Voucher (which is the 1st voucher sheet following the Certificate of Final Contract Acceptance cover sheet) and staple it to 2 copies of the Credit letter and send inter-office to the Cent.Off. OCIC Mailstop 650 Attention Estimate Section. (Include in same interoffice envelope at the same time as 9 above)
11. Attach the Certificate of Final Acceptance to both the original and the copy of the Final Voucher and have original signature of the **Engineer only** affixed to each. *(Remember that the ADE does not sign **until after** the Contractor returns the final to you and all other Contract requirements are present.)*
12. Prepare Certified Mail Package to Contractor make sure everything is properly addressed and return addressed.
13. Place both the original and copy of the Final Voucher in the Package along with 1 copy of all of the letters computer produced. (i.e. 2 page Contract

Requirements Letter; **Credit letter, if any– See Special note under # 10 above).
****Special Note:** – _Mn/DOT Finance will not bill a Contractor for less than $5.00. If you are in this situation you will have to cross out and initial the Credit Amount shown on the computer generated Requirements Letter and add the a statement "Credit Waived". Also discard the computer generated Credit Letter completely, **Do not send Credit Letter to Contractor**.

14 Mail Certified Mail Package to Contractor. ***Make sure the post office clerk knows that you want to have the Green Mail tag returned to you***.
15. Fill in the date in the first slot of Final Voucher Date Tracking Form, "Date Cert. Of Final Acceptance signed by Engineer and sent to Contractor"
16. If Certified Mail Package is returned as "Undeliverable" call the Project Activities Supervisor in OCIC.
17. Wait for Cert. Mail Green Card to come back and when it does enter the "Date of Delivery" shown on the Card into the Computer Field Final Application . The computer will automatically calculate the 90 day expiration date.
18. Staple the Certified Mail Green Card to the Final Voucher Date Tracking Form (Place to staple is indicated on Form).
19. Fill in slots (A) & (B) on the Final Voucher Date Tracking Form.(handwritten)
20. Monitor progress of Final Voucher. If you haven't heard anything from the Contractor, and the 90 days is almost expired (10 days or so before expiration) call Contractor and ask why he has not acted as yet. Find out why the delay. Remind Contractor that time is almost up, and also remind him of requirements he is still missing.(i.e. 1C-134, PR-47 signed voucher etc) Obtain some kind of commitment on when Final will be returned to you . Remind contractor of the danger of being put on reject bid list as per MN Statute 161.32.

Question: What If Contractor Disputes Quantities on Final Voucher Prior to Expiration of 90 Days ?

21. Analyze the Contractors dispute and determine whether you agree or disagree.
22. If you agree with the Contractor, and he has made his assertion prior to the expiration of the 90 days (either verbally or in writing), call the Project Activities Supervisor in OCIC immediately to request a Final Voucher Recall. Remember that finals can only be recalled by OCIC. Also remember that the Final **must** be recalled or the 90 days will continue to run until expiration.
23. Remember that under no circumstances can the contractor dispute the quantities or initiate legal action after the 90 days has expired.
24. After you have contacted OCIC you can immediately do the remake of the Final Voucher without having to wait for the actual physical recalled Final voucher to arrive from the Contractor.
25. The remade Final Voucher then goes through the same process as 1-22 above and a *brand new 90 day period* for the Contractor to sign begins.

26. If you hear nothing at all from the Contractor and the 90 days expires and you attempt unsuccessfully in making contact with them, inform the Project Activities Supervisor in OCIC.

Question: What if I disagree with the Contractors assertion of incorrect payment or quantities :

27. If this is the case, you verbally tell the Contractor you disagree with him , and follow up your reasoning why you are denying with a memo to him. It is then up to the Contractor to either except the Final as–is or take legal action against the State prior to the 90 day expiration date.
28. Many different "one of a kind" circumstances can occur when dealing with the 90 day time period. If undecided as to what action to take, contact the Project Activities Supervisor in OCIC before proceeding.

One original signature Final Voucher with the Contractors signature will be returned to you. The Contractor will keep the other original signature voucher for his records.

29. Check to see that the returned Final Voucher is signed by the Contractor and properly notarized . If not, notify him immediately and take appropriate action.
30. Update the Final Voucher Date Tracking form writing in the "Date signed final received back in office from Contractor"
31. Try to gather all of the requirements needed to fill out rest of the Final Date Tracking Form Boxes **(E)** through **(K**). Mark any boxes that don't apply N.A.
32. Retain the Final Voucher in the Resident Office until the Final Date Tracking Form is **completely filled out**. (this may be some length of time if there is a Labor Hold and your waiting for a "Labor Hold Release Letter"
33. When you receive the IC-134 Form from the Contractor, make sure that the date shown on the IC-134 Form *"Month / Year work Completed*" covers the period up to the Final Completion Date of your Contract, otherwise you have to ask for a new IC-134 that covers correct timeline.
34. Remember, you only need the Prime Contractor IC-134 Form to meet final Requirements. Do not need Subcontractors however you may get them and if so keep in your files.
35. You can use a photocopy of the PR-47 provided you have a "live" original signature . (Use blue pen or green pen).
36. A person from the Estimate Section in the Cent.Off. OCIC will contact you when the Credit payment owed by the Contractor (if any) is paid. (Box **J** on the "Final Voucher Date Tracking Form" can be filled in at that time)
37. Just prior to sending to ADE for signature, check in field CMS to make sure you haven't got a labor hold that went on in the interim…. You should have a letter or E-Mail from the Mn/DOT Labor Investigation unit if this is so… Lacking this letter, or any indication in view CMS you can mark Labor slot on date tracking

form as N/A and immediately send on to the ADE for signature without checking further.

When the Final Date Tracking Form is complete submit the original signature copy of the Final Voucher and Certificate of Final Contract Acceptance to the ADE for signature.

38. Make sure you staple a copy of the Final Voucher Date Tracking Form to the original signature Final voucher and Certificate of Final Contract Acceptance prior to giving to the ADE for signature.

When ADE signs and returns the original signature Final Voucher to you organize the total Final Package to the Office of Construction as follows:

39. Make two complete copies of the original signature Final Voucher.
40. Include complete **Original Signature** and one copy of the Final Voucher with the package to OCIC. Retain one copy of signed voucher in Engineers files.
41. Following the step by step instructions as shown in the Contract Administration Manual Section 5-591.410 pages DOCPAYITEM –13 and 14, organize and submit the Final Package to the Central Office of OCIC.
42. Final will be closed out "as-is" and the Contractor will be paid within approximately 4 working days after being received by OCIC.

General

1. This policy will apply to all routes, including 9 and 10-ton routes.

2. The allowable legal gross weight is defined as the vehicle(s) licensed gross weight plus the tolerance provided in Minnesota Statutes 168.013 or the gross vehicle weight provided by Minnesota Statutes 169.825, whichever is less.

3. In no case will the allowable legal gross weight exceed 80,000 lbs.

4. No payment will be made for any material in excess of the allowable legal gross weight. Any deduction from payment may be made during the life of the contract.

5. When discovered at the point of loading, any loads in excess of the allowable legal gross weight shall have material removed to bring the actual gross weight down to the allowable legal gross weight. No scale ticket will be issued or released until this is done.

6. The Project Engineer will check to see that the contractor has complied with the provisions of Specification 1513 as it relates to completing a Weight Information Card for each truck hauling. These cards will be spot Group checked by randomly selecting cards and checking all the information on the card for accuracy. Once the accuracy of the information has been established, the engineer will compute the allowable legal gross weight for each truck using the method in part B of this section. If the information supplied on these cards (including the gross weights) is determined to be correct, the information on the remaining cards will be assumed to be correct. However, the Project Engineer may, at any time during the project, randomly select trucks to verify the information supplied on the Weight Information Card.

Method of Determining Allowable Legal Gross Weight (GVW)

1. The allowable legal gross vehicle weights shall be the least GVW obtained by applying each of the different methods shown below.

   a. The gross vehicle weight obtained from the Minnesota Gross Weight Table. Consideration must be given as to the legal axle limits of the highway involved. Spring posting restrictions require another chart that may be obtained thought the Resident Office.

b. The amount of current vehicle licensed gross weight plus 4% or 1000 pounds, whichever is greater.

c. The Gross-Vehicle Weight obtained by combining the totals of groups of axles utilizing the weight chart and the portion of that law requires a maximum of 600 lbs. per inch of tire width on the steer axle (2 axles maximum) and a maximum of 500 lbs. Per inch of tire width on all other axles.

2. Given are examples that you may encounter.

The vehicle is a tandem axle truck with a spacing of 19 feet from center of the first axle to the center of the last axle, the tandem axle group has dual 10.00 x 20 tires and the front axle has single 11.00 x 20 tires (10:00 series = 10 inch wide & 11:00 series = 11 inch wide).

a. Gross vehicle weight from the weight chart (3 axles with 19' spacing) =50,500 lbs.

b. The vehicle is licensed for 61,000 lb., 4% of 61,000 lbs. = 2,440lbs. Therefore: 61,000 + 2,440 = 63,440 lbs.

c. Gross Vehicle Weight from the total of axle groups as shown below: 47,200 lbs.

Front Axle 13,200 lbs. Obtained by multiplying 600 lbs. x 22 inches total front axle tire width. Tandem axle group maximum is 34,000 lbs. obtained by using the weight chart column for 2 axles Even though the tandem axle group has a total of 80 inches of tire width (80 x 5OO = 40, 000lbs). It exceeds the 34, 000 lbs. shown in the weight chart, therefore the 34,000 lbs. must be used.

Keep in mind; the lowest number is always the limiting factor. Therefore, the allowable legal gross vehicle weight for this unit is 47,200 lbs. (13,200 + 34,000.)

Another vehicle is a 5-axle flow-boy with an overall spacing of 43 feet from center of the first axle to the center of the fifth (last) axle and spacing of 30 feet from the center of the second axle (lead axle of the

tractor tandems) to the center of the fifth (last) axle with all 10.00 x 20 tires on a ten ton route. (GVW is 73,280 lbs. On 9-ton axle limit route)

a. Gross vehicle weight from the weight chart. (5 axles with total of 43 feet spacing) 75,000 lbs.

b. The vehicle is licensed for 83,000 lbs., 4% of 83,000 lbs. = 3,320 lbs.
Therefore, 83,000 + 3,320 = 86,320 lbs.

c. Gross vehicle weight from the total axle groups as shown below: 74,000 lbs.

Front Axle 12,000 lbs. Obtained by multiplying 600 lbs/inch x 20 inches total front axle tire width.

Combined drive tandem axle group plus trailer tandem axle group is limited to 62,000 lbs., that is obtained by referring to the 4 axle column of the weight chart for 30 feet spacing. (Note that each tandem by itself theoretically could carry 34,000 lbs. for a total of 68,000 lbs., however the weight chart specifically does not allow a total of 68,000 lbs. on these axles unless the overall spacing of this 4 axle group is 36 feet or greater.) The allowable legal gross vehicle weight for this unit is 74,000 lbs. Based on 12,000 on steer plus 62,000 on the 4 load-carrying axle with neither tandem exceeding 34,000.

3. Additional Requirements

a. The MN tire law uses the tire manufacture's "nominal tire width", which is not the same as tire width. The Manufacturers "nominal tire width" can be obtained from a tire spec book or by noting the first 2 to 4 digits of the full tire marking, i.e., 11:00 series tire is deemed to be 11 inches wide. In addition, the manufacturers tire weight rating must never be exceeded.

b. The maximum of any axle is 18,000 lbs. on a 9 ton road and 20,000 on a ten-ton road, regardless of tire width.

c. For a tri-axle to be legal, the pressure varying mechanism for the tri-axle must be outside the cab. The raising and lowering device may be inside the cab. Apparently the tri-axles generally have a pressure of 40 psi to 60 psi to have sufficient loading on the tri-axle.

Additional Policies/Procedures

1. Net Weight automatic scaling/Print out Operation

   The tare weights supplied by the contractor on the Weight Information Cards are to be used in computing the actual gross vehicle weights from the net weight scale tickets. These tare weights shall be verified by random checks, during the duration of the project, at a certified scale of the contractor's choice.

2. For loads that are measured for payment by loose volume, the following shall be the Mn/DOT policy.

   a. Tare Weight: Same as C. I above.

   b. The difference between the tare weight and allowable legal gross weight will be the net weight to be used in determining the pay quantity.

   c. The weight per cubic foot of the material to be hauled must be determined. This may be done by the following method:

      Load tared truck with the material to be hauled and weigh on an acceptable scale. Determine volume of the truck box that the settled loose material is occupying. Divide the net weight of material by the determined volume to obtain the weight per cubic foot of material. Alternate methods of determining the weight per cubic foot of material considered acceptable by the Project Engineer may be used.

   d. The net weight divided by the determined material weight will be the maximum volume to be used for pay quantity.

   e. A marker shall be placed on the side of the box to correspond to that volume or a lesser volume.

   f. The measurements that correspond to the marked volume being used will be recorded on the Computation of Truck Box Capacity form and the contractor will be notified of that volume to be used for pay purposes.

g. The above procedure will be followed for each type of material (granular borrow, topsoil borrow, etc.) to be measured by loose volume measurement. If this procedure is followed it will not be necessary to process a Change Order for a change in method of measurement. The fact that this procedure was followed in determining the allowable box capacity shall be noted on the Computation of Truck Box Capacity form. This only applies to loose volume determinations. Spot checks of the loads, to insure conformance with the above determined volumes, will be made in the normal manner as provided for in Mn/DOT Specification 1901(10).

3. For loads that are not measured for payment by weight, and the net weight of the load is known, such as concrete ready-mix trucks, concrete batch trucks, bituminous distributor or other similar vehicles, the following shall be Mn/DOT policy.

   a. Tare Weight: same as C.I.

   b. The difference between the tare weight and allowable legal gross weight will be the net weight allowed to be hauled.

   c. Tickets or invoices certifying the material will not be issued for any loads known to exceed the allowable legal gross weight.

4. For loads that are not measured for payment by weight and the net weight of the load is not directly known, such as gravel trucks hauling (EN.) or (C.V.) borrow or aggregate materials, the following shall be Mn/DOT policy.

   a. Loads will be randomly selected at the Project Engineers discretion to check if loads are within legal weight requirements.

   b. Loads shall be weighed on an approved scale at the contractor's expense or weights may be checked by procedures outlined for L.B. measurements.

   c. Should the contractor persist in hauling overweight loads the State Patrol or appropriate law enforcement agency may be contacted to determine action to be taken.

Gross Weight Table – Minnesota Statute 169.825. Subd. 10

Daily Diary

Each technician assigned to a supervisory position or as Inspector of a major phase of a contract such as grading, street or plant inspection is required to keep a diary. An Engineer or Project Supervisor exercising supervision of a project need not maintain a daily diary; however, entries should be made in an Inspector's diary whenever an event occurs that is likely to require personal involvement at a later date. Such entries will be dated and signed by the Engineer. Diaries must be kept for each separate contract even though there may be two or more contracts within the same general area that involves the same contractor and engineering personnel. These diaries will become an important part of the project records if the project is subjected to audit, investigation, or litigation. To be effective, all entries should be accurate and concise yet complete enough so that the writer can recall the events early. No personal opinions or editorial comments are to be made in any diary that is a part of the project records.

All diaries are to be kept in bound field notebooks. Each book is to be labeled and indexed but pages need not be numbered since all entries are dated. The complete set of diaries is to be labeled uniformly. The project, highway, and contract numbers are placed on the front cover, together with other information indicating the scope and contents of each book.

Entries are to be made each day the diarist is on or involved with the project. The entry for each day must be dated and include the weather conditions with all critical changes being noted at the time of change. Entries should be referenced to the appropriate stationing or other convenient reference.

When the project is small or will only require a minimum amount of staking, supervision or inspection, all entries may be made in one book, which will be known as the project diary.

Engineer's Diary

Engineers are not required to keep a diary but may do so if it will assist them in supervising the work. Entries which may prove helpful include major actions taken; official conversations, visits, inspections and phone calls; contractor's work force and accomplishments; unusual conditions, problems, and defects encountered; and the use and disposition of inspection personnel.

Inspector's Diary

Each Inspector who is charged with the responsibility of reporting a construction activity must keep a daily diary. Ordinarily, separate diaries should be kept for such major construction items as grading, bridge, base and surfacing construction; for plant production of aggregates, concrete and bituminous mixtures and for specialty items such as fencing, lighting and signing. These, however, depend on the size and scope of the contract. In any event, all construction operations must be covered whether in a single diary or in separate diaries. When the contractor operates on a multiple shift basis the entry for each succeeding shift is made in the same diary under the date on which the shift started. The Inspector on each shift is responsible for making and signing their own record.

Inspectors should include in their diaries all decisions made and all actions taken each day, material record and progress estimates and other information, which might be of assistance in case of dispute. When one individual makes all entries in a diary, a statement to this effect, along with that individual's signature may be placed on the front page of the diary. Otherwise, the person making the entry must sign each separate entry.

Survey Chief's Diary

Survey Chiefs may keep a diary. If they do, it should include a brief listing of the survey crew activities for each day, indicating the progress of staking operations, difficulties encountered, contact with the contractor, any resetting of stakes necessary and other information indicating the sequence and adequacy of construction surveying.

Also included, along with the date, weather, and temperature data, should be the names of the individuals working in the survey party each day. The person making the entry must sign each daily entry, unless one individual makes all entries in which case that person should sign the diary on the front page.

General Responsibility

The Engineer is responsible for ensuring that all quantity measurements are made and documented in accordance with the Specifications and instructions included in the Manual. Section 420 of this manual includes a compilation of the Methods of Measurement, Basis of Payment and documentation requirements for all pay items contained in the Standard Specifications. The Special Provisions and Project Plans may address specific methods of measurement and payment requirements for certain pay items that supersede the Standard Specifications.

Item Record Account (IRA)

The IRA is the basis of recording and documenting all pay quantities. Upon Contract Award each Contract pay item has an IRA that is downloaded from the Office of Construction & Innovative Contracting (OCIC) to the Engineer via the field computer application. Pay quantities may be entered directly on the IRA or transferred from other records. Quantities may only be entered on the IRA when they are satisfactorily furnished and installed and become eligible for payment. The quantity entries, including supporting documentation, serve as both partial and final verification that correct payments are made on all vouchers. There are two types of quantity entries made by the Engineer, Contract Bid Pay Items and Back Sheet Pay Items described as follows:

Contract Bid Pay Items

All pay items in the Contract for which the Contractor submits a unit bid price, are referred to as "body" items and are entered and documented as they are satisfactorily furnished and placed and become eligible for payment. See Section 420 of this Manual for pay item documentation requirements and instructions.

Back Sheet Pay Items

Back sheet pay items are those contractual payments provided for by the Standard Specifications, Plans or Special Provisions, excluding Contract bid Items and Supplemental Agreement pay items. Back sheet payments require the creation of an IRA by the Engineer. The quantities for these items are then entered as they are satisfactorily furnished and installed and become eligible for payment. Each IRA entry for Back sheet items must include a payment authorization. Examples:

- Credit taken for out of tolerance B624 Curb & Gutter as per Standard Specification 2531.3 K(1).

- Items for additional traffic control as per Special Provision S-1.3
- Water for dust control as per Standard Specification 2130.5

Entries for Work Orders for Minor Extra Work payments must include the payment entries and a brief explanation of why the extra work was required of the Contractor.

OCIC downloads IRA's for pay items created by Supplemental Agreements to the field upon approval of the Agreement. When the download is then properly installed into the field computer application IRA's for each Supplemental Agreement Item will be created automatically.

Distribution of Pay Quantities by Group

Pay quantities on construction projects are usually divided into separate pay groups. The individual groups are identified on the first page of the payment voucher and further explained on subsequent pages. These group splits are required in order to account for separate costs such as federal funds, state funds, costs that will be borne by local government agencies and other unique situations. The accounting and appropriate billings are made by the Mn/DOT Office of Finance and are based on the Final Voucher quantities.

A complete review of the group descriptions and locations should be made prior to documenting and recording pay quantities. An Item Record Account is provided for each group in which a pay item is included.

The Engineer is responsible for appropriate pay group distribution of all Contractual Pay items and Back Sheet payments.

If there is a Municipal Agreement associated with a Contract, see Use of Change Order ahead in this Section.

Change in the Method of Measurement of a Contract Pay Item.

Any change in the method of measurement from the method specified in the specifications or special provisions shall be clearly documented either by Change Order or by entering an explanation of the change on the applicable Item Record Account(s). The unit of measure, for payment purpose, must remain the same as the original contract item, and may require a conversion factor to accomplish. Any conversion factor(s) that will be used must be included either by Change Order, on the supporting documentation or with the explanation in the "Remarks" field of the Item Record Account (IRA).

For Example:

Item Gravel Base Class 5 is designated by the Contract to be paid for by the ton. The method of measurement is changed to Cubic Yard (LV). In this case, the Cubic Yard total obtained by field measure must be converted back to tons for payment by using a conversion factor similar to 1.0 Cubic Yards. (LV) = 1.40 tons. Using this example, if a Change Order is not used, the following (or similar statement would be necessary either on the supporting documentation (Haul Sheets or directly on the IRA in the "Remarks" field.

" The method of measurement for Contract Item No. 2211.501 Gravel Base Class 5 is changed from ton scale weight to Cubic Yards (LV). Cubic Yard totals will be converted back to tons for payment by using a conversion factor of 1.0 Cubic Yard (LV) = 1.4 tons"

If a Change Order is used to accomplish a change in the method of measurement, it would be written to include all of the above requirements. When a Change Order is used the "Remarks" field of the IRA would simply state "See Change Order # _____".

In all cases, whenever a change in the method of measurement occurs, the new method of measurement will dictate the "Supporting Documentation " that must be properly referenced on the IRA and submitted to OCIC with the final records.

Supporting Documentation

The term "Supporting Documentation" is defined as any physical record that was created to serve as verification of either a partial or final pay quantity of a pay item. For daily update entries, the nature of these records must be entered on the IRA in either the "Document Location / Verification" field or the "Remarks" field. (Example: Concrete Measurement Book). For final documentation, this same Concrete Measurement Book that was used as support for each daily entry, will be completed and more specifically referenced in the "Final Document Location" field as BOOK B-1 PAGES 1-8 CONCRETE WALK. Supporting Documentation includes, but is not limited to, various books, booklets, envelopes, forms, packets, quantity tabulations, data collection forms, and other field measurements/computations.

Source Documentation

Application

When using "Source" Documentation, the user is declaring that "Supporting Documentation " is nonexistent and was at no time ever created to document the quantity. If any "Supporting Documentation does exist, it must be submitted with the final records and "Source" cannot be used. To qualify as "Source Documentation", all entries must be entered directly on to the Item Record Account via the field computer application Update option, with no intermediate transfers of entries taken from other documents.

Verification

In order for "Source Documentation" to be valid it must be accompanied by an explanation of how the quantity being entered is verified. For daily Update computer entries, this verification must be entered on the Item Record Account in either the Document Location / Verification field or the "Remarks" field of the Item Record Account. (Examples of this verification would be: Actual field measure, field count, date completed, etc) As final documentation, the Documentation Location field of the field computer application Certify option will simply state "Source Documentation " as a reference.

The use of "Source Documentation" does not relieve the user from meeting any of the quantity verification requirements. Sufficient data to fulfill all documentation requirements for the item must be contained solely on the applicable Item Record Account.

Quantity Documentation Using The Computer Generated Data Collection Forms (Also referred to as Field Record Documentation FRD's). l

Using the Reports option, the user has the capability to create Data Collection Forms within the field computer application for use in documenting pay quantities. These forms are self-explanatory and are designed to fulfill daily documentation requirements when completed correctly. When these forms are used, they become part of the supporting documentation and must be properly referenced on the applicable Item Record Account and submitted with the final records.

The Data Collection Form will be acceptable documentation in lieu of any specific Mn/DOT forms requirements contained in section 420 of this manual; provided all of the quantity documentation required by the form is present on the Data Collection Form. However, there may be a reason other then

quantity documentation that would cause you to adhere to the required form. (Example: You would want to use the required Mn/DOT Form 2210 Pile Driving Report to document 2452 Piling pay items because in addition to quantity documentation Mn/DOT form 2210 requires you to enter other vital information (i.e. pile penetration, bearing, elevations etc.)

(P) Plan Quantity Documentation

(P) Plan Quantity Item designations are found only in the Statement of Estimated Quantities contained in the project Plans. NOTE: Even though the (P) designation is contained in the Statement of Estimated Quantities the Engineer can change the method of measurement from (P) Plan Quantity to an actual field measured item, on any item so designated, provided it is agreed upon by both the Engineer and the Contractor. The inverse is also true, as any pay item can also be designated as a (P) Plan Quantity item with the mutual agreement of the Engineer and Contractor, even if it is not so designated in the Statement of Estimated Quantities.

Manually entering (P) Plan Quantity Designations in the Field Computer Application

(P) Plan Quantity Item Designations are not included in the original project download to the Engineer. All (P) designations must be manually entered into the Field Computer Application in order to match the (P) designations contained in Statement of Estimated Quantities plan sheets. These entries should be made in Field Computer Application at the onset of the project.

Verification / Documentation

If no change in the Contract Proposal Quantity occurs, Final Documentation of a (P) Plan Quantity is accomplished by completing the following "Plan Quantity Statement"

"The finished product is in close conformity with the specified dimensions as verified by the _____ method."

The blank space provided in the above statement will be used to indicate the method of checking that was used in lieu of actual field measurement to verify that the specified dimensions used to originally establish the Contract Proposal (P) Quantity were attained. (Examples: form check, depth check, length -width - depth, stake check etc. These check measurements will be retained in the

Engineers project records to substantiate the validity of the Plan Quantity statement.

Documenting Changes to (P) Plan Quantity

In order to provide flexibility for increases or decreases all (P) items are bid by a measurable unit and price (such as $4.00 per Cubic Yard). For quantity documentation purpose, any change in (P) Plan Quantity is classified as either a *computed only change* or an *actual field measured change.*

Documenting a Computed Only Change to (P) Plan Quantity – [New (P) Plan Quantity]

If the Contract Proposal Quantity of a (P) item is changed based on computation only, (either in part or as a whole), the single "Plan Quantity Statement" and "Source Documentation will then apply to the new (P) Quantity arrived at by adding (or subtracting) the computed changed portion of the Final Pay Quantity to the original contract Proposal Quantity. Computations of this type that are not based on actual field measurements will remain in the engineer files.

Documenting an Actual Field Measured Change to (P) Plan Quantity – [(P) Plan Quantity Plus]

Any actual field measured additions or subtractions to the (P) Plan Quantity must include all "Supporting Documentation" with the Final records. On the Item Record Account, any actual field measured change must be documented separately from the computed only changes portion of the Final Pay Quantity.

Use of the Change Order to Document Changes in (P) Plan Quantity

It is recommended to document changes to (P) Plan Quantity via Change Order. This is especially true when dealing with (P) items that have a large quantity. [Example: Item 2105.501 Common Excavation 785,000 Cu. Yd. (P)]. It is not unusual for an item such as Common Excavation to undergo both computed and actual field measured changes several times throughout the life of the Contract. In these cases the Change Order is a good tool to document each change step by step. In all cases, the following information is required to document any change to (P) Plan Quantity:

- Reason for change
- Location

- Specific Increase / Decrease Quantity
- Method of Measurement- Actual Field Measured or Computed

Use of Change Order on Projects that have Municipal Agreements with (P) Plan Quantity Items

When there is a Municipal Agreement connected to a Contract, it is highly recommended that any changes in quantity of a (P) Plan Quantity Item be documented by Change Order. Using a Change Order in this situation will serve to clearly delineate the proper quantity splits for each Group. The Change Order will also eliminate the need for the Mn/DOT Municipal Agreement section to search field records to locate documentation. Municipalities routinely request this information /documentation in order to verify their portion of financial responsibility in the project. (Often a municipality will request this information long after the project is completed.)

In the absence of a Change Order, such changes may also be made by including all of the above-required information on the applicable Item Record Accounts or by separate record. In all cases, documenting changes to (P) Plan Quantity Items must have a clear and logical audit trail.

Secondary Documentation

When it is found impractical or impossible to comply with the documentation requirements of a pay item as set forth in this manual, secondary documentation can be used.

1 - Recognizes the problem of documenting a pay item in the manner required.
2 - Resolves the situation by using a logical, secondary method to accomplish the documentation.
3- Explains the circumstances necessitating the use of Secondary Documentation

An explanation must be included for each item where Secondary Documentation is used. This explanation can either be entered directly on the Item Record Account or affixed to the actual Secondary Documentation submitted with the Final records.

SPECIAL NOTES

Standard Plate Items

If any pay item is placed in accordance with a Mn/DOT Standard Plate which has predetermined quantities set forth (or formula for such quantities), these quantities (or formulas) will be accepted in lieu of any measurements or computations required elsewhere in this manual, provided a statement on the Item Record Account (or other supporting documentation) confirms that the item was placed in accordance with the provisions of said Standard Plate. (Example: Class 11 Riprap placed in accordance with Standard Plate No. 3133C.)

Special Pay Items

Special pay items, not specifically covered by the Standard Specifications, shall be measured and documented in accordance with the method of measurement and basis of payment outlined in the Contract Special Provisions. If a special pay item is not addressed in the Contract Special Provisions, measurement and payment shall be made in accordance with the Standard Specifications as applied to a similar or "like" pay item.

Invoice Documentation (Non-Force Account)

When shipments are received on the project and the Contractors invoice will serve as documentation of a Contract pay item, the Field Inspector shall make certain that the material furnished is indicative of the quantities shown on the invoice. The Inspector shall initial the invoices to verify the quantity of material used and identify the State Project No. on each invoice.

Vehicular Measure

The hauling capacity of trucks, trailers and semi-trailers shall be documented on Form 2141 (Computation of Truck Box Capacities). The hauling capacity of scrapers shall be documented by listing the make model number and manufacturers rated struck capacity on form 28266 (Quantity Tally Sheets). If sideboards are added, measure and compute the added capacity on form 2141 and add it to the manufacturers rated struck capacity. Heaped capacity is restricted to elevating scrapers only.

Uniform Load Establishment & Method of Quantity Verification

There are numerous acceptable methods of establishing uniform loads and various methods of quantity verification. Often, the methods used are not readily

evident by the documentation submitted with the Final records. When this is the case, the Engineer will include with the Final records, a short memorandum addressed to OCIC that explains the specific steps taken in both the establishment and the verification of such loads. (Note: *A typical example of a memorandum explaining the Establishment & Method of Quantity Verification of Uniform Loads is shown in the Documentation Requirements Section of the CAARS User Manual- Sept. 1999.)*

Uniform Load Documentation -Spot Checks
Documentation of Uniform Loads shall be accomplished on Weigh Tickets or form 28266 (Quantity Tally Sheets) and the daily spot checks.

Spot Check Weight - Spot checks will be taken two or more times a day during each full days production or as determined by the Engineer, and will be performed as follows: A loaded truck selected by the Engineer shall be stopped and directed to a commercial scale were the actual weight of material is determined to assure that this actual load is equal to or exceeds the established uniform load weight. The commercial scale tickets showing tare, gross and net weight checks shall be recorded and submitted with the Final, with proper reference on the applicable Item Record Account (IRA).

Spot Check Volume - Spot checks will be taken two or more times a day during each full days production or as determined by the Engineer, and will be performed as follows: A loaded truck selected by the Engineer shall be stopped and the actual volume of material determined to assure that this actual load is equal to or exceeds the established uniform load volume. The results of these spot checks may be recorded directly on form 28266 (Quantity Tally Sheets), or by separate record. All spot check records shall be submitted with the Final, with proper reference on the applicable IRA.

Weigh Tickets

A copy of form 21820 "Instructions for Proper Validation of Weighing Tickets Form 2177" must be posted in the scale house prior to weighing pay quantities. Each scale person and street checker should be familiar with these instructions before performing their duties. A Field Inspector must initial all tickets at the point of delivery and verify the S.P. No. on each ticket.

Rounding Procedures

The "Unit " columns in section 420 of this manual show the units (Cu.Yd.; Lin.Ft.; 0.1 Cu.Yd.; etc.) to which the individual Contract pay items will be paid. Items

that are to be paid to fractions of the unit are so designated in this "Unit" column. In addition, pay items shown as fractional quantities in the "Approximate Quantities" column of the Proposal should be rounded-off and paid as fractional quantities. All other units will be paid to the closest whole unit.

Exceeding the accuracy of the requirements shown in the "Unit" columns in section 420 of this manual will be acceptable for all pay items. Rule: No pay item used will be rounded to a "0" (Zero) Final Pay Quantity. The objective of the rounding procedures is to create a fair payment for any pay item. Consistent math rounding procedures throughout a ***given pay item*** will be used in all intermediate measurements leading up to the Final Pay Quantity for that item.

Rounding Exception

When a pay item has a substantial Unit Price, paying to the closest whole unit can at times cause undue overpayment or underpayment to the Contractor. (For example: Structural Concrete @ $300.00 per Cubic Yard). In this case, the Engineer may at his /her discretion invoke a "Rounding Exception".

Using the above Structural Concrete example, the Engineer may want to pay to the closest 0.1 of a Cubic Yard rather than to the closest 1.0 Cubic Yard as designated in section 420 in this manual. This "Rounding Exception" can be used on all pay items except those items that are to be measured as "Each", "Lump Sum" or (P) Plan Quantity. Common sense will prevail and no special notation on the Item Record Account will be required when this "Rounding Exception" is used.

Elimination of Pay Items / Pay Items Not Used or Needed

Whenever any pay item is either eliminated by the Engineer or not used or needed, the Item Record Accounts for those pay items will show a Final Pay Quantity of "0" (Zero). In addition, an explanation of why the item was not used must be given in the "Final Documentation Location" or "Remarks" field of the applicable finalized Item Record Account. Examples: (Item not used; Item eliminated by Engineer or similar statement).

FINAL DOCUMENTATION SUBMITTAL / ASSEMBLY OF FINAL PACKAGE

The Final Documentation Submittal is generated by the field computer application and completed by the Engineer. This form lists the documents necessary for the creation of the Finals packet submitted to OCIC for payment**.** The following items are to be included with every Finals packet submitted. The Final Documentation Submittal Form will be included with the Miscellaneous File. (See Assembly of Records to be submitted with Finals Package at end of this section)

1- Project Personnel Roster(Computer generated) –This roster will contain the names, signatures, initials and working titles (Examples: Scale person, Street Checker, Various Inspectors and Office persons), of all Mn/DOT personnel involved in the quantity documentation process for the Final being submitted. The Project Personnel Roster will be included with the Miscellaneous File (See Assembly of Records to be submitted with Finals Package at end of this section)

2- Final Voucher (Computer Generated) - Each Voucher will include all finalized pay quantities and have an attached computer field generated Certificate of Final Acceptance signed by the Engineer, District Engineer and Contractor .

3- Final Voucher Date Tracking Form(Computer Generated) – This form is used *to* monitor the progress of each Final Voucher from the time the Engineer sends it out to the Contractor, until it is signed by the District Engineer and submitted to C.O. for payment. This form, along with any Certified Mail Stubs will be submitted in the SPECIAL CONTRACT REQUIREMENTS File (See Assembly of Records to be submitted with Finals Package). (also see Sample **"D**" in Payment Provisions Section 5-591.370 page PAYPROVI- 17).

It is not necessary for the Engineer to make a partial payment estimate just prior to producing the Final Voucher unless the amount due the Contractor prior to Final exceeds $5000.00**. However, this does not prevent the Engineer from making such a partial payment for less then $5,000.00 if he/she desires to do so**. It should be remembered that once the Final Voucher is received by the Office of Construction it will only be approximately 4 working days before the Contractor will receive final payment.

4- Overrun and Underrun Report – (Computer Generated) - The O/U report is mandatory on all Federally funded Contracts which are designated **FAP ,MAP, FFO, or SAFO.** O/U reports which may be required only by District

Construction Management need not be submitted with the Final records. If required, the O/U Report will be submitted in the Miscellaneous File. The O/U report shall contain the following:

(a) - An explanation of the overruns / underruns of Major Contract Items which have varied in excess of 25% of the original contract quantity. (Note: A Major Contract Item is defined as an item that has a dollar value that exceeds both **5%** of the original contract value and **$10,000.00** .

(b) - , A list of all Change Orders and a brief description of intent for each along with proper sequence numbers. (Example: this Contract has 7 Change Orders # 1 through 4 and 4A through 6. Change Order #1 provides for a change in the method of measurement for item 2105.503 Common Excavation.) etc.

(c) - A list of all Work Orders for Minor Extra Work along with proper sequence numbers. No further explanation is required. (Example: This Contract has 12 Work Orders for Minor Extra Work numbered 1-12)

If there are no Major Contract Items (as defined above), or if none of the Major Contract Items varies more than plus or minus 25%, an Overrun / Underrun report will still be required. In this case a simplified version of the O/U report will contain a positive statement: "There were no significant overruns or underruns of Major Contract Items on this Contract" OR "This Contract contained no Major Contract Items". In addition, this simplified version of the O/U report will continue to require a listing of all Change Orders and Work Orders for Minor Extra Work as shown in (b) and (c) above.

5. *Final Backup Diskette* - The Final Backup Diskette is submitted in the Miscellaneous File and serves the following purposes:

a) - Creates a historical record of the Contract.

b)- Makes it unnecessary to print Item Record Accounts in the field for submittal in the Final Packet.

c) - Provides all necessary data required by the Office of Construction in the event of a Field Final Review.

d) - Provides the Office of Construction with the capability to create any Item Record Account when performing a Field Final Review.

6. Copies of Plan Sheet(s) of Estimated Quantities (including bridges) – these plan sheets must be submitted in the Miscellaneous File as they are necessary to identify any (P)Plan Quan.pay items included with the Contract.

6a. **Special Note:** ***Bridge As–Built Plan Sheet-*** At the time of the Final a copy of the As- Built Plan Sheet must be submitted to the Bridge Office ATTN: Regional Bridge Engineer (MS 610). However, it is **not necessary** to submit this Plan sheet with the Final package that is sent to OCIC. **Also see Reporting Final Bridge Clearances ahead in Section .410 under OTHER RECORDS TO BE SUBMITTED WITH FINAL.**

ASSEMBLY OF RECORDS TO BE SUBMITTED TO THE OFFICE OF CONSTRUCTION IN THE FINALS PACKAGE

Every Final submitted to OCIC will include, among other things, the following 3 files in separate envelopes or other enclosed type files.

1 - **Miscellaneous File** - which will include in order:

- Computer Final Backup Diskette
- One (1) copy of the Final Documentation Submittal Form
- One (1) Copy of the Project Personnel Roster
- One (1) Copy of the Overrun- Underrun Report (If necessary)
- One (1) copy of each Statement of Estimated Quantities Plan Sheet (s) necessary to determine (P) Plan Quantity Pay Items.
- All Change Orders (If any)
- All Work Orders (if any)

2 - **Special Contract Requirements File** - which will include in order:

- One (1) copy of the Final Voucher Date Tracking Form with Certified mail tags stapled to bottom of form.
- Two (2) copies of the Final Voucher & Certificate of Final Contract Acceptance with original signature on one (1) copy.
- One (1) copy of the Minnesota State Withholding Tax Form IC-134; (Only Prime Contractor copy is required with Final records Sub Contractors IC-134 can remain in Engineers files.)
- One (1) copy of the Federal Form PR-47 Statement Of Materials And Labor (Only required on Contracts designated **FFO, FAP, MAP & SAFO**).with a final value of work certified over $ 1 million).
- One (1) copy of the Final Inspection Report by Construction Standards Engineer. (District State Aid Engineer or designee for State Aid projects.)
- One (1) copy of the Material Certification Exceptions Summary Form TP-02171-04. (Not required on Building Removal projects.) (See **PROCESS FOR CERTIFICATION OF MATERIALS** end of this Section 5-591.410)
- One (1) copy of the signed Final Contract Time Certification Form with Final Contract Date Log stapled to back of form, showing all Contract start, stop, and other pertinent dates. (See section 5-591.340 Contract Time for examples).

3 - Final Contract Time File – All Contract Time documents will be submitted in one envelope or enclosed type file labeled “FINAL CONTRACT TIME FILE”. (See section 5-591.340 CONTRACT TIME for examples) This includes one copy each of the following:

- All Working Day Statements.
- All Change in Construction Status Reports.
- All Time Extension Memos Change in Construction Status Reports
- All Revision of Working Day Memos.

In addition to the above, see “Other Records to be Submitted With Final” below

LABOR HOLDS

All labor holds will be resolved before the Engineer submits the Final to the Assistant District Engineer for signature. When Finals are received back signed by the Contractor, they will be held in the Engineers office until hold is released by the Mn/DOT Labor Investigation Unit in Central Office. (See Section 5-591.370 for samples of hold & release letters)

OTHER RECORDS TO BE SUBMITTED WITH FINAL

In addition to the above, any document referenced in the "Final Documentation Location" field of the Item Record Account (See Supporting Documentation on page DOCPAYITM – 4) must also be submitted with the Finals Packet. This includes any of the specific Mn/DOT Forms used as documentation. All Books; Booklets, Envelopes, Folders etc. submitted as supporting documentation must be properly identified on their front covers as to S.P. Number and Contract Number.

Each separate document or page (except for a factory bound book – example: diary book) must be identified as to S.P or Contract Number and Pay Item Identification. All entries must be signed or initialed by the person making the entry. If measurements are made by a person or persons other than the person making the entry, each party must be identified.(If a pay item contained in any document has the S.P. or Contract Number and the Item Identification on the first page for that item, then each additional page for that item is acceptable with the S.P. Number, document (A-1 , B-1 etc.) and page number. Initialing would only be required on the last page for each item under these circumstances).

Cross-section rolls that are not computer generated must be accompanied by both original and final survey notes. Volume computation can then be submitted either directly on the cross-section rolls or on Mn/DOT form 2190. No records are required to be submitted when computer generated yardage computations do not incorporate actual field "Shots" (and subsequent reductions) to arrive at a pay quantity. When computer generated cross–sections are used the "Document Location" or "Remarks" on the finalized IRA for the pay item involved must state "Computer Generated Yardage" or similar statement.

If calculations are required to arrive at a pay quantity, someone other than the one making the original calculation will check each calculation. The person making such checks will initial all math checks. Exception : Simple "one line" calculations entered directly on the CAARS Item Record Account will not require checking by someone other than the person making the entry. (Examples: 12 Ft. x 11Ft = 132 Sq.Ft. ; or 5 pails of sealer @ 50lbs. each = 250 lbs. – 30lbs. waste = 220 lbs. used.).

No erasures or overwriting is permitted in any documentation. If an error is made it will be corrected by neatly crossing out the erroneous data with a single line and entering the correct data in the most logical place.

REPORTING FINAL BRIDGE CLEARANCES

Whenever new or existing structures are constructed or reconstructed they may affect the vertical and/or horizontal clearance for vehicle passage. The Engineer shall notify the District Permit Office by filing a Mn/DOT Form 17151 VERTICAL AND HORIZONTAL BRIDGE CLEARANCE REPORT (2 pages) found on Bridge Office Web Site www.dot.state.mn.us/bridge. It is **not** necessary to submit form 17151 to OCIC with the Final records. However, a copy of all reports shall be submitted to the Mn/DOT Bridge Office (MS 610) ATTN: Bridge Management Engineer. A sample of a completed form 17151 can be found at the end of this Section. This form can also be printed with the Final documents in Field Computer Application.

PRE- PAYMENT REVIEW OF FINALS IS NO LONGER PERFORMED IN OFFICE OF CONSTRUCTION & INNOVATIVE CONTRACTING (OCIC)

No independent review of Finals is made by OCIC prior to final payment being made. Final Vouchers and all Project documentation will continue to be submitted through OCIC. The final pay quantities will be accepted **"as is"** by OCIC and forwarded to the Mn/DOT Office of Finance for final payment . Turn around time after submittal to Central Office until time of final payment will be approximately 4 days.
Important Note: When the final voucher is signed by both the District and the Contractor it becomes a completely executed Contract and no changes in payment can be made. **Once the Field Final is submitted to** OCIC **the Contract will not, under any circumstances, be re-opened for correction by either party to the Contract.**

Upon receiving a completed Field Final, OCIC will immediately perform a "Preliminary Assessment of Final Completed in Field" on every Field Final received. A copy of this assessment will be immediately returned to the Engineer and inform him/her of any glaring errors that have occurred in the Field Final process. Informational and non-corrective in nature, the sole aim of the Preliminary Assessment is to prevent repeating of the same errors in future Field Finals.

POST - PAYMENT FIELD FINAL REVIEW PERFORMED BY OCIC

Certain selected Passed For Payment Finals submitted from each District / Metro Resident Office will receive a non-corrective detailed Review of the project records. A complete check of procedures used in the administration of Contract Time will be included with this Review. When completed by OCIC a copy of each review will be given to the Engineer for his/her review to assist in the preparation of future finals. In addition, these reviews will be compiled statewide into a summary report that will indicate specific training needs.

STORING OF FINAL RECORDS

The Office of Construction will ship all final records to the State Record Center where they will be retained in storage for the Record Retention Period.

Form 17151 (12-62)

MINNESOTA DEPARTMENT OF HIGHWAYS

MAINTENANCE SECTION

VERTICAL AND HORIZONTAL BRIDGE CLEARANCE REPORT

T.H.No. 494

BRIDGE No. 22713 + 22713A

COUNTY Henn DATE OF INFORMATION 3-28-90 MAINT AREA No. Metro

LOCATION 0.3 mi E of JCT TH 169

(Distance N-S-E-W from nearest town or highway intersection)

TYPE OF BRIDGE 501 BM SPAN

OVER OR UNDER WB Prairie Center Dr + RAMP

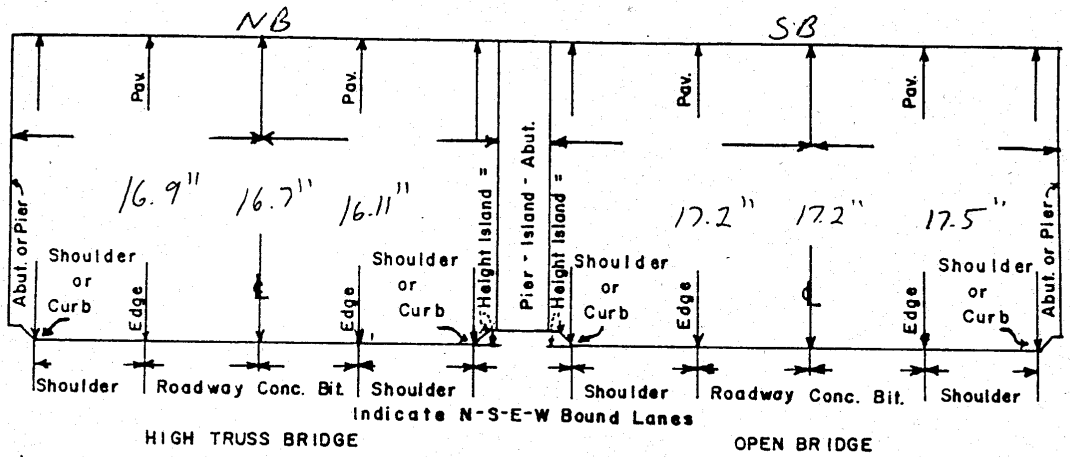
(Name or number Railroad - Highway - Street - County Road - River - Stream - Creek)

TYPE OF HIGHWAY INTERCHANGE ½ Diamond

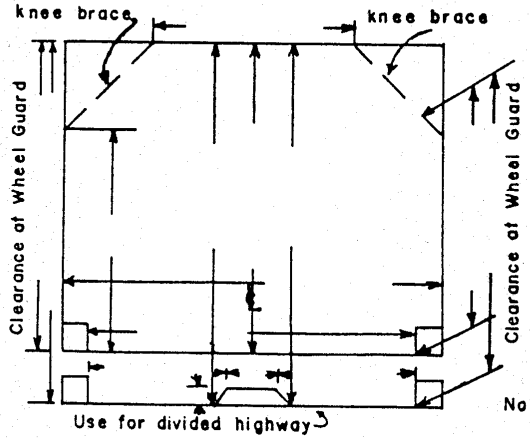
(Draw Sketch on Reverse Side)

LOAD LIMIT Legal PERMIT LOAD LIMIT SB

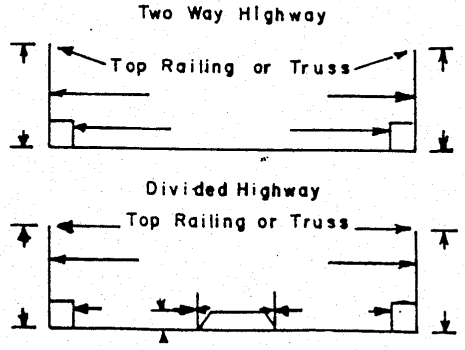
UNDERPASS - - DIVIDED HIGHWAY OR TWO WAY HIGHWAY



HIGH TRUSS BRIDGE



OPEN BRIDGE

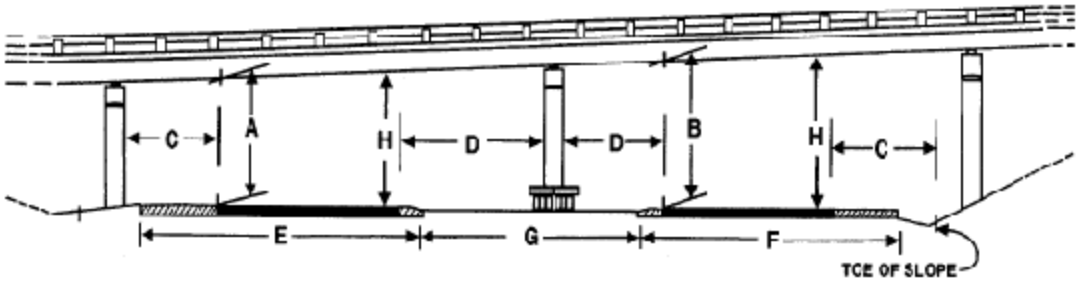


Note: Show Sidewalks and indicate side of bridge N-S-E-W

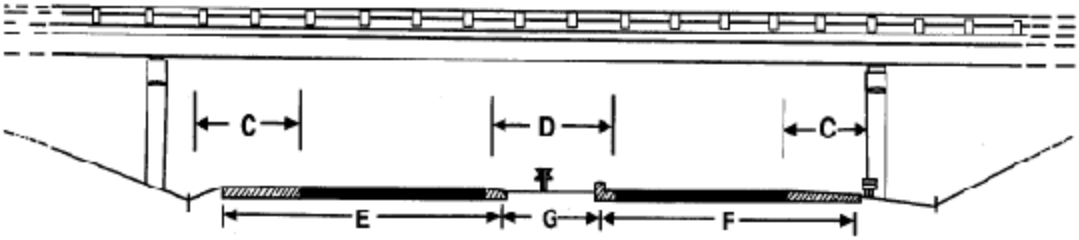
SAMPLE FORM 17151 – VERTICAL AND HORIZONTAL CLEARANCE REPORT

UNDERPASS MEASUREMENTS

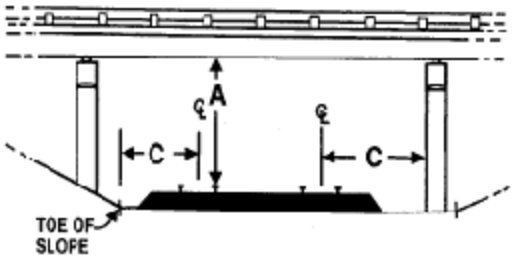
TYPICAL DIVIDED UNDERPASS WITH CENTER PIER



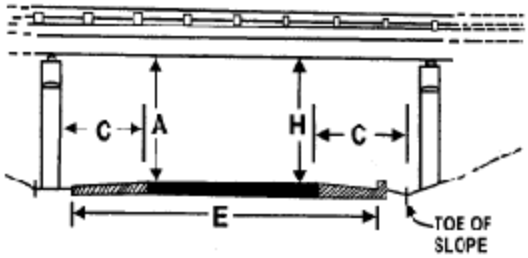
TYPICAL DIVIDED UNDERPASS WITHOUT CENTER PIER



TYPICAL RAILROAD UNDERPASS



TYPICAL UNDIVIDED UNDERPASS



ROADWAY SHOULDER

Vertical Clearance Under
For Divided Roadways Record Measurement
A = N.B. or E.B.
B = S.B. or W.B.
For Railroad under or 2-Way Road Record Measurement A

Under Clearance Lateral
For Divided Roadway Record the Lesser of Measurement
C = Right Side Clearance
D = Left Side Clearance
For Railroad under or 2-Way Road under record the lesser of measurement C

Roadway Width
For Divided Roadway
E = N.B. or E.B. Roadway
F = S.B. or W.B. Roadway

Median Width
G = Median Width from edge to edge of shoulder, curb, etc.

Maximum Vertical Clearance
H = For 10' Wide Vehicle

PROCESS FOR CERTIFICATION OF MATERIALS

PURPOSE

This Section sets forth the process for certifying the quality of materials used in Mn/DOT contracts. This process differs from Technical Memorandum 99-34-MRR-08 in that it contains some revised terminology that is necessary to accommodate the "Field Final" process instituted by the Office of Construction & Innovative Contracting effective November, 1 2002.

This process for Materials Certification applies to all Mn/DOT (including Mn/DOT consultants) construction and maintenance contract projects whether or not federal funding is involved. Projects administered by local agencies shall follow the process required by the State Aid Division.

BACKGROUND

The Mn/DOT Quality Assurance Program consists of all those planned and systematic actions necessary to provide confidence that a product or service provided by a highway construction contractor or a construction product vendor meets Mn/DOT's requirements for quality.

The Quality Assurance Program

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_____.

Each of the three major parts of the Mn/DOT Quality Assurance Program include several specific components as listed below:

Acceptance Program	Acceptance/Assurance/Verification Sampling and Testing Quality Control Testing (Certified Plants) Small Quantity Acceptance Schedule of Materials Control Qualified Laboratories (Central, District, and Field) AMRL Laboratory Accreditation Plant Monitoring Certified Plants Technician Certification Equipment Calibration Approved Products Pre-Cast Plant Inspection Dispute Resolution
Independent	Independent Assurance Inspector (IAI)

Assurance	Evaluations and Reviews Schedule of Independent Assurance Sampling and Testing Laboratory Companion Samples (from Schedule of Materials Control) Proficiency Samples (Round Robins)
Materials Certification	Project Materials Certification (Current Tech Memo) OM Annual Project Compliance Reviews State Aid Division Project Audits/Reviews

The following describes the process for the Materials Certification part of the Quality Assurance Program.

DEFINITIONS

Acceptance Program. All factors that comprise Mn/DOT's determination of the quality of products as specified in the contract requirements. These factors include verification sampling, testing, and inspection and may include results of quality control sampling and testing.

AMRL. AASHTO Materials Reference Laboratory.

Approved Products. Products which can be accepted based upon a manufacturer's representation that a product complies with all contract requirements, usually identified by a product name. Common examples are concrete admixtures, joint sealers, raised pavement markers, and sign sheeting.

Certified Products. Products which can be accepted based upon a manufacturer's certificate of compliance. Certified products are sometimes referred to as from "certified sources" or "approved manufacturers." Common examples are asphalt, cement, fly ash, paint, and seed.

Field sampling and testing. Acceptance tests identified in the *Schedule of Materials Control* as "Field Tests," taken and performed by a Mn/DOT representative. Field tests are commonly run in the field or in a field laboratory, but may be run at any qualified laboratory.

Independent Assurance (IA) Program. Activities that are an unbiased and independent evaluation of all the sampling and testing procedures used in the Acceptance Program. The program covers sampling procedures, testing procedures, and testing equipment, and is defined in the *Schedule of Independent Assurance Sampling and Testing.*

Laboratory testing or field companion testing. Tests performed by a Mn/DOT District or central laboratory on a companion sample to the field test, as identified in the "Schedule of Materials Control." Not to be performed by the same person and/or equipment as the field test.

Materials Certification. A process that provides reasonable assurance that all aspects of the Acceptance Program have been satisfactorily completed and that the materials incorporated are in close conformance to the contract specifications.

OM. The Office of Materials includes the Geotechnical Engineering Section, the Materials Engineering Section and the Pavement Engineering Section. The Pavement Engineering Section contains the Bituminous and Concrete Units. The Geotechnical Engineering Section contains the Grading and Base Unit. These units are traditionally referred to as the "specialty offices."

Proficiency samples. Homogeneous samples that are distributed and tested by two or more laboratories. The test results are compared to assure that the laboratories are obtaining the same results. Commonly, two homogenous samples are created by splitting a larger sample and are called "companion samples."

Quality assurance testing or quality control companion testing**.** Testing performed by a Mn/DOT representative on companion samples to the contractor or vendor's quality control samples. Also known as QA testing.

Quality control sampling and testing. Testing performed by the contractor on samples taken by the contractor for process control which is used as a part of the acceptance decision as defined by the "Schedule of Materials Control." Also known as QC testing or process control testing. A Mn/DOT representative is required to observe a minimum number of some types of quality control samples and tests.

Qualified laboratories. Laboratories that are capable as defined by appropriate Mn/DOT programs. As a minimum, each laboratory has a program for checking test equipment and the laboratory keeps records of calibration checks. Qualified sampling and testing personnel are used whenever performing acceptance tests for Mn/DOT or Federal-aid projects.

Qualified sampling and testing personnel. Personnel who are certified by the Technical Certification Program for tests they perform.

Verification companion testing. Testing performed by the contractor or vendor

on a companion to Mn/DOT's verification sample. These test results are required to be used in the contractor or vendor's quality control program.

Verification sampling and testing. Sampling and testing which is performed by a Mn/DOT representative, excluding the contractor and vendor, on samples taken by a Mn/DOT representative independently of the quality control samples and which is used as a part of the acceptance decision to validate the quality of the material which is being accepted based upon quality control testing.

MATERIALS CERTIFICATION PROCESS

Field Documentation
The Acceptance Program is used to verify material quality as materials are incorporated into a project, accepted, and paid for. Whenever exceptions to the Acceptance Program requirements occur, those exceptions and corresponding resolutions are documented.

During the course of the project, and prior to or at the time of Final Acceptance of Work (Mn/DOT Spec 1516.2), the Project Engineer will record exceptions and resolutions on form TP-02171-04 and/or document exceptions and resolutions by Supplemental Agreement, Change Order or Backsheet Item. The Project Engineer will consult with and request input from the District Materials Engineer and the appropriate Specialty Offices. Both the Project Engineer and the District Materials Engineer sign form TP-02171-04 to indicate that they have had the opportunity to provide input. Specialty Offices provide input to form TP-02171-04 or provide separate documentation that allows the Project Engineer to complete the form. [*Changes made to accommodate the Field Final process effective November 1, 2002 are shown the next 3 paragraphs in bold - any questions concerning Field Final process call Denny Springer @651-296-8473.]*

At the time of Final Acceptance of Work, and prior to the Project Engineer signing the Field Final and sending it to the Contractor for signature, form TP-02171-04 should be completed and all exceptions resolved. When the Engineer signs the Final Voucher to send to the Contractor the project is certified.

When the Final Voucher is returned signed by the Contractor, Form TP-02171-04 must be addressed by the Project Engineer on the Final Voucher Date Tracking Form by placing the date certified in the space provided on the form. (for sample Final Voucher Date Tracking Form see Section 5-591.370) . Lacking this date on the Final Voucher Date Tracking Form, the Assistant District Engineer Construction will not sign and fully execute the Final Voucher.

As a part of the fully executed Final Voucher Package, Form TP-02171-04

is submitted to the Office of Construction and Innovative Contracting in the Special Contract Requirements File.

The Office of Construction and Innovative Contracting need not review the content of form TP-02171-04 to complete the certification. The Office of Materials will review the content of the form for its own information and to provide feedback to District personnel. **All exceptions to the Acceptance Program requirements must be recorded on form TP-02171-04 or listed on the Summary Report of supplemental agreements, change orders, and backsheet items attached to form TP-02171-04.**

The following are EXCEPTIONS:

Failing Tests	Any failure of an acceptance test, meaning a field test, quality control test, or verification companion test. Corrections or deducts resulting from failing tests must be listed as resolutions of exceptions.
Missing Tests	Any missed field test, quality control test, or verification test. Tests include required observations of quality control tests.
Test Tolerance	Any tolerance failure between an acceptance test and the corresponding companion proficiency or Independent Assurance sample test. Companion sample tests are performed between: Field and Laboratory samples Quality control and quality assurance samples Verification and verification companion samples Field and Independent Assurance samples Quality control and Independent Assurance samples Plant observer's quality assurance or verification samples and IA samples Note that when an acceptance test passes and the companion proficiency or Independent Assurance sample fails but is within the allowed tolerance, there is no exception to be documented.
Non-Certified Testers	Any acceptance samples taken or tests performed by non-certified or under-certified testers. This includes contractor quality control tests when used for acceptance

and agency verification tests. Tests not performed in a qualified laboratory are also exceptions.

Other Exceptions — Material accepted from a non-approved source, missing certificates of compliance, etc.

Exception Clarifications — Independent Assurance tests fails and is out of tolerance is an Exception.

Individual test out of tolerance, but moving average within limits is an Exception for individual test out of tolerance.

Bituminous test results in the warning band (year 2000 and older specifications) is an Exception, reduce payment in accordance with specifications.

Paving without a Mixture Design Report/Recommendation is an Exception.

The following are Not Exceptions:

Low concrete cylinder strength. Not an exception unless cylinder strength is specified on that project.

Field QC test passes, lab QA test fails and the tests are within tolerance.

Independent Assurance test fails and is within tolerance of a passing field test.

QA test does not meet JMF/broadband requirements, QC test meets requirements and the tests are within tolerance.

Out of tolerance test on Bituminous summary sheet, with a retest that is within tolerance.

Bituminous gradation tests outside the current Mixture Design Report/JMF but within the requested mix adjustment. Not an exception if the requested mix adjustment is approved. When the request is approved, it should be considered effective from the time it was made and noted on the daily summary sheet.

Missed Independent Assurance (IA) tests. Not an

exception that must be listed on the Materials Certification Exception summary Form. However, Mn/DOT must provide an Annual IA Report to the Federal Highway Administration that lists the number of missed IA tests. The District Materials Engineer is responsible for tracking the number of missed IA tests and reporting that number annually to the Pavement Engineer for compilation into the Mn/DOT annual report to the FHWA. The latest version of the Exceptions Summary Form has check boxes to assist with the tracking of IA activities.

NOTE The Automation Section in the Office of Construction and Innovative Contracting, have developed a summary type report in the field computer application for change orders, supplemental agreements and backsheet items.

All exceptions not covered by change orders, supplemental agreements or backsheet summary reports need to be listed on the Exception Summary Form. A copy of the change order, supplemental agreement, and backsheet summary reports must be attached to the "Exception Summary Form" TP-02171-04.

Resolutions are required for all exceptions recorded on form TP-02171-04. Resolutions can be brief, but must describe the action taken or the rationale for taking no action. Supporting documentation should be contained in the file. Examples of actions taken as resolutions may include "standard deduct applied," or "$ per unit deduct applied," or "mix change made and testing rate increased," or "testing equipment recalibrated, test rerun and passed," etc.

Resolutions may also result in no actions having been taken. This is an acceptable resolution when accompanied by appropriate rationale. Often, "substantial compliance" or "in close conformity" will be used as resolutions in these situations. Generally these resolutions should only be used for a minor test failure or the omission of a few out of many required tests. Rationale for taking no action must be included on the form or referenced.

Certificate of Final Contract Acceptance
Materials Certification applies to the Acceptance Program activities only. The certification instrument will be the Certificate of Final Contract Acceptance contained on the Final Voucher. It is the responsibility of the project engineer to verify that all aspects of the Acceptance Program were complied with and that exceptions are appropriately resolved and duly documented in the project file. For information, the statement on the Final Voucher reads as follows:

> This is to certify that to the best of my knowledge and belief the items of work shown in

the statement of work certified herein have been actually furnished in accordance with the plans and specifications. This project has been completed in accordance with the laws, standards and procedures of Minnesota as they apply to projects in this category and, if applicable, approved by the Federal Highway Administration.
Dated:
_____ Signature:_____
Project Engineer

By signing the Certificate of Final Acceptance, the Project Engineer is certifying that all aspects of the project have been properly completed. This Technical Memorandum describes the materials aspects of that certification. The certification for materials consists of the following.

1. All materials incorporated into the project were in conformance with the approved plans, special provisions, and specifications (including approved changes).
2. The required number of observations were made and/or samples taken, tested, and compared to companion sample test results (where applicable) in conformance with the minimum testing rates listed in the "Schedule of Materials Control" and project special provisions.
3. All Mn/DOT and contractor project personnel performing acceptance testing were certified at the appropriate level for the tests performed. All acceptance tests not performed by project personnel were performed by a qualified laboratory or by Mn/DOT central or plant inspection.
4. All acceptance samples taken and tested as a companion to an independent assurance sample were within tolerance limits of the independent assurance companion samples.
5. Any exceptions to items 1-4 and resolutions to those exceptions have been duly documented and appropriate corrective measures have been taken. Form TP-02171-04 has been completed, placed in the file, and copies sent.

Project Compliance Reviews
Project Compliance Reviews may be conducted by the Pavement and Geotechnical Engineering Sections of OM and by other specialty offices such as Agriculture, Materials/Metals, and Chemical. The Federal Single Audit is a separate process conducted independently by the Mn/DOT Auditor's office.

A committee from the Office of Materials will annually select projects from within various categories to review for compliance with the requirements of the Materials Certification process. Reviewing will also be done to determine compliance with Mn/DOT requirements to submit reports to OM.

Review rates and project categories will be determined by this committee.. The rate may vary from category to category of project, and complex project categories may be reviewed at a higher rate. The rates may be adjusted by this

committee as deemed necessary to provide reasonable assurance that the Materials Certification process is being complied with.

Both irregularities and areas of outstanding performance found during reviews will be reported back to the Project Engineer and District/Metro Materials Engineer. The Project Engineer, with the cooperation of the District/Metro Materials Engineer, will address, and if possible correct, all irregularities. The Assistant District/Metro Engineer will receive a copy of the District/Metro results and the Project Engineer's explanations.

If the Districts or Metro perform in-house review processes that meet the requirements of the Pavement Section for compliance reviews, the Pavement Engineer may delegate review responsibility to the District/Metro Materials Engineer and reduce or eliminate reviews performed by the Office of Materials.

It is the responsibility of the Office of Materials to compile the results of the Project Compliance Reviews performed by the various specialty offices, and the audit results from the Mn/DOT Auditor's Office. The compiled results will be summarized and evaluated for needed improvements to the Quality Assurance Program.

Independent Assurance
Independent Assurance is not an integral part of the Materials Certification Process. However boxes are provided on the Materials Certification Exceptions Summary Form to assist the tracking of Independent Assurance activities. The District Materials Engineer is responsible for annually reporting the Independent Assurance activities to the Mn/DOT Pavement Engineer independently of the Materials Certification process.

QUESTIONS

If you have questions concerning Materials Certification contact the Materials Office at (651) 779-5592.

MATERIALS CERTIFICATION EXCEPTIONS SUMMARY

09/23/05

S.P. No. 3708-13	Contract No. S04099	Project Desc. : BIT OVERLAY, AGGREGATE SHOULDERING, AND CULVERT LINERS	Const. Year :
TH:	District 08	Contractor: Contractor: Central Specialties, Inc	Project Location: LOCATED ON TH 40 FROM THE SOUTH DAKOTA STATE LINE TO TH 75, IN MADISON
Project Engineer/Supervisor:Stoutland, Jim		Federal No. STATE FUNDS	Page of

Materials and products used on project:

☒ Grading and Base ☐ Bituminous ☐ Concrete ☐ Aggregate ☐ Materials/Chemicals

Specialty	Exception Description	Resolution	Document Reference	Init.

Dist./Metro Materials Engineer Date Project Engineer Date

ATTACH SUMMARY REPORTS OF SUPPLEMENTAL AGREEMENTS, CHANGE ORDERS, and BACKSHEET ITEM EXCEPTIONS.

☒ No Independent Assurance Required

☐ Independent Assurance Required

☐ Independent Assurance Completed Without Exceptions

☐ Independent Assurance Completed With Exceptions

Information regarding Independent Assurance is available in the District I.A. or Project Engineer Files

Original: Retain in Project File

Copy: State Materials Testing Engineer - MS 645

Copy: Financial Operations Section - MS 215

Copy: District Materials Engineer

Copy: Office of Construction - MS 650

MATERIALS CERTIFICATION EXCEPTIONS SUMMARY FORM TP-02171-04

Special Pay Items

Special pay items, not specifically covered by the Standard Specifications, shall be measured and documented in accordance with the method of measurement and basis of payment outlined in the Contract Special Provisions. If a special pay item is not addressed in the Contract Special Provisions, or in this section 420 of the Contract Administration Manual, measurement and payment shall be made in accordance with the Standard Specifications as applied to a similar or "like" pay item.

Special pay items are listed in the Contract Special Provisions using a .600 suffix after the 4 digits item number. [Example: Item 2506.603 - L.P. Catch Basin Design Special]

Spec. No.:	**2021**
Contract Items:	Mobilization
Unit - U.S.:	L.S.
Unit - Metric:	L.S.
Documentation:	Enter on I.R.A. as a decimal for the Partial Estimate. For the Final, submit the I.R.A. as Source Documentation.

Method of Measurement: Lump Sum - Engineer will estimate the dollar value percentage of the completed work for the Partial Estimate.

Spec. No.:	**2031**
Contract Items:	Field Office, Type _____ Field Laboratory, Type _____
Unit - U.S.:	Each
Unit - Metric:	Each
Documentation:	Record on the I.R.A. For the Final, submit the I.R.A. as Source Documentation.

Method of Measurement: Unit - Payment based on number of satisfactory accepted units.

Spec. No.: **2051**
Contract Items: Maintenance & Restoration of Haul Roads

Unit - U.S.: L. S.
Unit - Metric: L. S.

Documentation: Record in remarks column on the I.R.A. the date the haul road was released. For the Final, submit the I.R.A. as Source Documentation.

Method of Measurement: Lump Sum - One hundred percent (100%) of this item paid upon satisfactory restoration.

Spec. No.: **2101**
Contract Items: Clearing and Grubbing

Unit - U.S.: Acre
Unit - Metric: *(Hectare)*

Documentation: Record topographic notes. For the Final, submit the topographic notes with proper reference on the I.R.A.

Method of Measurement: Area Computation - Measure and compute the horizontal area bounded by lines 10 feet, (3 m) outside the line of trunks of trees cleared, or stumps grubbed. Compute each area to the closest 0.05 acre, (0.02 ha).

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Spec. No.: 2 101 (cont.)
Contract Items: Clearing and Grubbing

Unit - U.S.: L. S.
Unit - Metric: L.S.

Documentation: Record on the I.R.A. as a decimal for Partial Estimate. For the Final, submit the I.R.A. as Source Documentation.

Method of Measurement: Lump Sum - Pay the percent completed in each Partial Estimate. Pay 100% of each item on the satisfactory completion of all clearing and grubbing.

Spec. No.: 2101 (cont)
Contract Items: Clearing
Grubbing

Unit - U.S.: Tree
Unit - Metric: Tree

Documentation: Record tree count for each item, in each area as part of the notes.

For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Unit - Count for payment all trees more than 4", (100 mm) in diameter at a point 2 feet, (600 mm) above ground, or at cutoff point for stumps.

Spec. No.: 2102
Contract Items: Pavement Marking Removal

Unit - U.S.: S.F
Unit - Metric: *(Square Meter)*

Documentation: Record location, dimensions and computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Area Computation - Measure and compute the area of the markings as Acceptably Removed. Striping areas will computed on the basis of nominal widths and actual lengths as originally applied and still evidenced at the time of removal.

Spec. No.: 2102 (cont.)
Contract Items: Pavement Marking Removal

Unit - U.S.: L.F.
Unit - Metric: *(Meter)*

Documentation: Record location and measurements. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Linear Feet, *(meter)* - Measure length of the original markings as acceptable removed. Removal length will be computed by the actual length of each pavement marking removed and will not include the gap between the broken lines.

Spec. No.: **2103**
Contract Items: Building Removal

Unit - U.S.: L.S.
Unit - Metric: L.S.

Documentation: Record on the I.R.A. For the Final, submit as Source Documentation.

Method of Measurement: Lump Sum - All buildings, on the project, removed will comprise Lump Sum.

Spec. No.: 2103 (cont.)
Contract Items: Disconnect Sanitary Sewer
Disconnect Water Service

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record physical count. For the Final, submit these records with proper reference on I.R.A.

Method of Measurement: Unit - Physical count.

Spec. No.: 2103 (cont.)
Contract Items: Basement Fill

Unit - U.S.: C.Y.
Unit - Metric: (Cubic *Meter)*

Documentation: Record inside dimensions and computations. Record date of backfill as part of the notes. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Volumetric Measure (By Computation) - Measure and compute fill as volume of air space inside the basement walls below the ground level.

Spec. No.: **2104**
Contract Items: Remove
Salvage

Unit - U.S.: L.F.
Unit - Metric: *(Meter)*

Documentation: Record location and length of each removal and/or salvage. Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Linear Feet *(meter)*- Length measurements will be made along the longitudinal center line of the structure, parallel to the base or foundation upon which the structure is placed, and from end to end of the structure as removed. Pipe measurements will be made from center to center of junction fittings, catch basins, or manholes, and will include the length of any aprons required to be removed in conjunction therewith.

Note: *Specify Item Name, such as: culvert pipe, sewer pipe, drainpipe, curb and gutter, curb, sidewalk, fence, concrete or masonry structures, railway track, manholes or catch basins, integrant curb, concrete pavement, bituminous pavement, pavement, trench pavement, guard rail, water well, etc.*

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Spec. No.: 2104 (cont.)
Contract Items: Remove

Unit - U.S.: S.F./S.Y.
Unit - Metric: *(Square Meter)*

Documentation:	Record location, dimensions and computations. For the Final, submit these records with proper reference on the I.R.A.
Method of Measurement:	Area Computation - Measure and compute the in-place area. Removal includes base and cushion courses if applicable. Also includes the removal of integrant curb, if applicable.
Note:	*Specify Item Name, such as: culvert pipe, sewer pipe, drainpipe, curb and gutter, curb, sidewalk, fence, concrete or masonry structures, railway track, manholes or catch basins, integrant curb, concrete pavement, bituminous pavement, pavement, trench pavement, guard rail, water well, etc.*
Spec. No.:	2104 (cont.)
Contract Items:	Remove
Unit - U.S.:	C.Y.
Unit - Metric:	*(Cubic Meter)*
Documentation:	Record three dimensional sketches, measurements and computations. For the Final, submit these records with proper reference on the I.R.A.
Method of Measurement:	Volumetric Measure (By Computation) - Measure length, width and depth, and compute volume.
Note:	*Specify Item Name, such as: culvert pipe, sewer pipe, drainpipe, curb and gutter, curb, sidewalk, fence, concrete or masonry structures, railway track, manholes or catch basins, integrant curb, concrete pavement, bituminous pavement, pavement, trench pavement, guard rail, water well, etc.*
Spec. No.:	2104 (cont.)
Contract Items:	Remove Salvage Abandon
Unit - U.S.:	Each
Unit - Metric:	Each

Documentation: Record location of each removal and/or salvage. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Unit - Physical count.

Note: *Specify Item Name, such as: culvert pipe, sewer pipe, drainpipe, curb and gutter, curb, sidewalk, fence, concrete or masonry structures, railway track manholes or catch basins, integrant curb, concrete pavement, bituminous pavement, pavement, trench pavement, guard rail, water well, etc.*

Spec. No.: 2104 (cont.)
Contract Items: Sawing Concrete Pavement
Sawing Bituminous Pavement

Unit - U.S.: L.F
Unit - Metric: *(Meter)*

Documentation: Record location and measurements. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Linear Feet, *(meter)* - Measure length along the saw cut line(s) as staked by the Engineer.

Note: *(1) Specify Item Name, such as: culvert-pipe, sewer-pipe, drain pipe, curb and gutter, curb, sidewalk, fence, concrete or masonry structures, railway track, manholes or catch basins, integrant curb, concrete pavement, bituminous pavement, rail, water well, etc.*

Spec. No.: **2105**
Contract Items:
Common Excavation
Sub-grade Excavation
Unclassified Excavation
Common Channel Excavation
Rock Excavation
Rock Channel Excavation
Muck Excavation

Unit - U.S.:

Unit - Metric: *(Cubic Meter)*

Documentation: See Plan Quantity.

Method of Measurement: See Plan Quantity.

Spec. No.: 2105 (cont.)
Contract Items: **Common Excavation**
Unclassified Excavation
Common Channel Excavation

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record x-section notes in x-section book. Plot area and show computations on x-section rolls. For the Final, submit the x-section book and rolls with proper reference on the I.R.A. See Records to be submitted in section 410.

Method of Measurement: Cross Section Measure (Re-measurement) - Volume will be computed by the average-end-area method, using the latest available x-section as the original x-sections.

When Common Channel Excavation is Not a Bid Item - Excavation ordered and performed that would otherwise be classified as Common Channel Excavation will be paid for separately at the Contract price for Common Excavation in the body plus $ 1. 00 additional per C.Y., ($1.30 additional per m3) as a back sheet item.

Spec. No.: 2105 (cont.)
Contract Items: Rock Excavation

Unit - U.S.: C. Y.
Unit - Metric: (Cubic *Meter)*

Documentation: Record x-section notes in x-section book. Plot areas and show volume computations on x-section rolls. For the Final, submit the x-section

book and rolls with proper reference on the I.R.A. See Records to be submitted.

Method of Measurement: Cross Section Measure (Re-Measurement) - Use "the rock when stripped" elevations as the original x-sections.

Over-break Allowance - Compute volume using a 6-inch (6"), (150 mm) over-break allowance outside the grading section as staked, with the exception that 18 inches (18 "), (460 mm) (measured horizontally) will be allowed outside of back-slopes in hard rock types where pre-splitting is not required. No over-break allowance will be made for pre-split back-slopes.

When Rock Excavation and Rock Channel Excavation are not bid Items - If the Proposal fails to include a bid item for rock excavation or rock channel excavation, and material is uncovered that is so classified, excavation of the rock will be paid for separately at the Contract price for common Excavation or common channel excavation, plus $12.00 additional per cubic yard, ($16.00 *additional per M* 3) as a back-sheet item. If no bid item is provided for common excavation. Excavation of materials classified as rock channel excavation will be paid for at the Contract price for common excavation plus $14.00 additional per cubic yard, ($18.00 *additional per* m3) as a back-sheet item. Such stipulated prices for rock excavation will apply up to a maximum of 250 cubic yards, (200 m3) of excavation per item or to such quantity as may be performed by mutual consent prior to execution of a Supplemental Agreement.

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Spec. No.: 2105 (cont.)
Contract Items: Muck Excavation

Unit - U.S.: C.Y.
Unit - Metric: (Cubic *Meter)*

Documentation: Record x-section notes in x-section book. (If borings have been taken after backfill is in-place - in lieu of x-sections - record the boring results in the x-section book.) Plot areas and show volume computations on x-section's rolls. For the Final, submit the x-section book (with borings notes, if necessary) and x-section rolls - with proper reference on the I.R.A. See Records to be submitted.

Method of Measurement: Cross-Section Measure (Re-measurement) - When additional Muck Excavation, as required by the Engineer, is removed from below a plane parallel to, and 15 feet (5.0 m) below the natural ground surface, the additional Muck Excavation will be measured in 5-foot (2.0 m) depth-zone increments and will be paid for, separately as a back-sheet item, as follows:

15'- 20'depth-zone: Contract Bid price + $0.15/C. Y.
20'- 25' depth-zone: Contract Bid price + $0.20/C.Y.
25'- 30' depth-zone: Contract Bid price + $0.25/C.Y.
5.0 - 7.0 m depth-zone: Contract Bid price + $0.20/m3
9.0 m depth-zone: Contract Bid price + $0.25/m3
9.0 - 11.0 m depth-zone: Contract Bid price + $0.30/m3
(i.e., each 2.0 in increment in depth, etc., below 11 m deep, will increase the adjusted unit price by $0.05)

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Spec. No.: 2105 (cont.)

Contract Items: Rock Excavation

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record measurements and volume computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Volumetric Measure (By Computation) - Measure and compute as instructed by the Engineer all boulders and detached stones, having a volume of 1 C.Y. (0.75 *m3)* or more.

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Spec No.: 2105 (cont.)

Contract Items: Granular Borrow (EV)
Select Granular Borrow (EV)
Common Borrow (EV)
Topsoil Borrow (EV)
Select Topsoil Borrow (EV)

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record x-section notes in x-section book. Plot areas and show volume computations on x-section rolls. For the Final, submit x-section books and rolls with proper reference on the I.R.A. See Records to be submitted.

Method of Measurement: Cross-Sectional Measure (EV - Excavated Volume) – Compute volume using the average-end area method, of the material in its original position at the source of supply.

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Spec. No.: 2105 (cont.)
Contract Items: Granular Borrow (LV))
Select Granular Borrow (LV)
Common Borrow (LV)
Topsoil Borrow (LV)
Select Topsoil Borrow (LV)
Unit - U.S.: C. Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record vehicle measurements and volume computations on Form 2141. Record the load-count of material used on Form 28226. For the Final, submit the above forms in booklet or folder form, with proper reference on the I.R.A. See Vehicular Measure Note.

Method of Measurement: Vehicular Measure (LV - Loose Volume) - Measure and compute the capacity of the hauling vehicle to the closest C.Y. (0.1 m3) Round the total for each area to the closest C.Y. (m3) per day.

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Spec. No.: 2105 (cont.)
Contract Items: Granular Borrow (CV)
Select Granular Borrow (CV)
Common Borrow (CV)
Topsoil Borrow (CV)
Select Topsoil Borrow (CV)

Unit - U.S.: C. Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record x-section notes in x-section book. Plot areas and show volume computations on x-section rolls. For the Final, submit the x-section books and rolls with proper reference on the I.R.A. See Records to be submitted.

Method of Measurement: Cross-Section Measure (CV - Compacted Volume) – Compacted volume will be determined by cross-section measure of the material as placed in the work based on the required placement dimensions, as shown in the Plans, described in the Specifications, or designated by the Engineer.

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Spec. No.: 2105 (cont.)
Contract Items: Granular Borrow (SV)
Select Granular Borrow (SV)
Common Borrow (SV)
Topsoil Borrow (SV)
Select Topsoil Borrow (SV)

Unit - U.S.: C. Y.
Unit - Metric: (Cubic *Meter)*

Documentation: Record x-section notes in x-section book. Plot areas and show volume computations on x-section rolls. For the Final, submit x-section books and rolls with proper reference on the I.R.A. See Records to be Submitted.

Method of Measurement: Cross-Section Measure (S.V. - Stockpile Volume) – Compute volume using the average-end area method of the material in the stockpiled position. The Contractor

shall shape the stockpile to a condition as directed by the Engineer prior to measurement.

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Spec. No.: 2105 (cont.)
Contract Items: Stabilizing Aggregate

Unit - U.S.: Ton
Unit - Metric: *(Metric Ton)*

Documentation: Record uniform loads on Form 28226. Record non-uniform loads on Form 2177 with tape, slip or other accumulation, showing total for each area per day. For the Final, submit these forms in booklet, folder or packet form, with proper reference on the I.R.A. See Delivery Tickets Note. See Uniform Load note.

Method of Measurement: Weight (Mass) (Scale) - Weigh on approved scales. Round each load to closest 0.1 ton *(0.1 metric ton).* Round the total for each area to closest ton *(metric ton)* per day. For uniform load method Delivery Tickets are not required.

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Spec. No.: 2105 (cont.)
Contract Items: Stabilizing Aggregate

Unit - U.S.: C. Y.
Unit - Metric: (Cubic *Meter)*

Documentation: Record vehicle measurements and volume computations on Form 2141. Record the load-count of material used on Form 28226. For the Final, submit these forms in booklet or folder form, with proper reference on the I.R.A. See Vehicular Measure Note.

Method of Measurement: Vehicular Measure - Measure and compute vehicle capacities to closest 0.1 C.Y. (0.1 m3) Round the total for each area to the closest C.Y. (M) per day.

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Spec. No.: 2105 (cont.)
Contract Items: Salvage Aggregate
Salvage Topsoil
Salvage Aggregate (LV)

Salvage Topsoil (LV)

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record vehicle measurements and volume computations on Form 2141. Record the load-count of material used on Form 28226. For the Final, submit these forms in booklet or folder form, with proper reference on the I.R.A. See Vehicular Measure Note.

Method of Measurement: Vehicular Measure - Measure and compute vehicle capacities to closest 0.1 C.Y. (0.1 m3) Round the total for each area to the closest C.Y. (m 3) per day.

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Spec. No.: 2105 (cont.)
Contract Items: Salvage Aggregate (EV)
Salvage Topsoil (EV)

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record x-section notes in x-section book. Plot areas and show volume computations on x-section rolls. For the Final, submit x-section books and rolls with proper reference on the I.R.A. See Records to be Submitted.

Method of Measurement: Cross-Sectional Measure - Compute the volume, using the average-end-area method, of the material.

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Spec. No.: 2105 (cont.)
Contract Items: Salvage Aggregate (SV)
Salvage Topsoil (SV)

Unit -U.S.: C. Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record x-section notes in x-section book. Plot areas and show volume computations on x-section rolls. For the Final, submit x-section books and rolls with proper reference on the I.R.A. See Records to be submitted.

Method of Measurement: Cross-Section Measure (SV - Stockpile Volume) – Compute volume using the average-end area method of the material in the stockpiled position. The Contractor shall shape the stockpile to a condition as directed by the Engineer prior to measurement.

Spec. No.: **2111**
Contract hems: **Test Rolling**

Unit - U.S.: Road Station
Unit - Metric: *(Meter)*

Documentation: Record the length and location of the Roadbed tested. For the Final, submit these records with proper reference on the I.R.A

Method of Measurement: Road Station - Measure length in road stations of 100 feet along the centerline of the roadbed. Measure ramps and loops to the ends of entrance and exit noses. If the Engineer orders testing on any portion of the roadbed to an extent less than the full width specified, the measurement will be is proportion to the width tested.

Spec. No.: **2112**
Contract Items: **Sub-grade Preparation**

Unit - U.S.: Road Station
Unit - Metric: *(Meter)*

Documentation: Record measurements. For the Final, submit the measurements, with proper reference on the I.R.A.

Method of Measurement: Road Station - Measure length in road stations of 100 feet, along the centerline of the roadbed. The work on each separate roadbed in the case of divided highways will be measured separately. Locations where grading or sub-grade excavation (as described in 2105) is required will not be included in the measurements. On ramps and loops, the length will be measured between the ends of the exit and entrance noses, along the centerline of the ramp or loop roadbed.

Spec. No.: **2118**
Contract Items: **Aggregate Surfacing, Class _____**

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record vehicle measurements and volume computations on Form 2141. Record the load-count of material used on Form 28226. For the Final, submit these forms in booklet or folder form, with proper reference on the I.R.A. See Vehicular Measure Note. Section 410

Method of Measurement: Vehicular Measure - Measure and compute vehicle capacities to closest 0.1 C.Y. (0.*1 m3).* Round the total for each area to the closest C.Y. (W) per day.

Spec. No.: 2118 (cont.)
Contract Items: Aggregate Surfacing, Class _____

Unit - U.S.: Ton
Unit - Metric: *(Metric Ton)*

Documentation: Record uniform loads on Form 28226. Record non-uniform loads on Form 2177 with tape, slip or other accumulation showing total for each area per day. For the Final, submit the above forms in booklet, folder or packet form, with proper reference on the I.R.A. See Delivery Tickets Note. See Uniform Load Note. Section 410

Method of Measurement: Weight (Mass) (Scale) - Weigh on approved scales. Round each load to closest 0.1 ton (0.1 *metric ton*). Round the total for each area to the closest ton *(metric ton)* per day. For uniform load method Delivery Tickets are not required.

Spec. No.: **2120**
Contract Items: **Earth Shoulder Material**

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record vehicle measurements and volume computations on Form 2141. Record the load-count of material used on Form 28226. For the Final, submit the above forms in booklet or folder form, with proper reference on the I.R.A. See Vehicular Measure Note.

Method of Measurement: Vehicular Measure - Measure and compute vehicle capacities to closest 0.1 C.Y (0.1*m3*). Round the total for each area to the closest C.Y. (m3) per day.

Spec. No.: **2123**

Contract Items: **Common Laborers**
Motor Grader
____C.Y. *(m3)* Dragline
____C.Y. (*m3*) Shovel
C.Y. *(m3)* Scraper
Dozer
____C.Y. (*m3*) Truck
H.P. (kW) Tractor
Rotary Tiller
____C.Y. (*m3*) Front End Loader
Pneumatic Tired Roller
Pneumatic Tired Roller (Tractor Drawn)
Pneumatic Tired Roller (Self-Propelled)
Tamping Roller
____Ton *(metric ton)* Steel-Wheeled Roller

Unit - U.S.: Hour
Unit - Metric: Hour

Documentation: Record equipment and labor hours on Form 2137. For the Final, submit these forms in booklet or folder form, with proper reference on the I.R.A.

Method of Measurement: Miscellaneous - Measure the hours of actual working time and necessary traveling time within the project limits. Round the time for each item to the closest half-hour per day.

Note: *The only overtime work, which will receive additional compensation, will be that work ordered by the Engineer.*

Spec. No.: **2130**
Contract Items: **Water**

Unit - U.S.: 1000 (M) Gal.
Unit - Metric: *(Cubic Meter)*

Documentation: Record on Form 21236. For the Final, submit these forms with proper reference on the I.R.A.

Method of Measurement: Volumetric Measure (Liquid- Load-Count Method. Measure and compute tank capacities to the closest 100 gallons *(0.4 m3)* and count the number of loads used.

Tank Method. If tank has a rated capacity stenciled or placarded use capacity shown on tank, and count the number of loads used.

Meter Method. Use calibrated meter, and modify Form 21236 to show beginning and ending reading. When a municipal meter is used, a certificate from the municipal officer is acceptable.

In the absence of a contract bid for and when water is not included as incidental to another contract pay item, water applied by order or approval of the Engineer, such as for dust control, will be paid for at a unit price of $11.00 per 1000 gallons ($3.00 *per m3).*

Spec. No.: **2131**
Contract Items: **Calcium Chloride, Type _____**

Unit - U.S.: Ton
Unit - Metric: *(Metric Ton)*

Documentation: Bulk Method - Record the mass of the material from the railroad or truck invoices. (Use converted weights, if applicable). For the Final, submit these invoices and records with proper reference on the IR.A.

Method of Measurement: Weight *(Mass)* (Scale) - Measured by the net railroad or track invoice. Round total to the closest 0.1 ton (0.*1 metric ton).* Convert to equivalent mass if other than specified analyses is furnished.

Spec. No.: 2131 (cont.)
Contract Items: Calcium Chloride, Type____

Unit - U.S.: Ton
Unit - Metric: *(Metric Ton)*

Documentation: Bag or Drum Method - Record bag or drum count and computations. (Use converted weights, if applicable). For the Final, submit these records and computations with proper reference on the I.R.A.

Method of Measurement: Weight *(Mass)* - (By Computation) - Count the number of individual containers and multiply by the weight per container. Round total to the closest 0.1 ton (0.1 *metric ton).* Convert to equivalent weights if other than specified analyses is furnished.

Spec. No.: 2131 (cont.)
Contract Items: Calcium Chloride Solution

Unit - U.S.: Gal.
Unit - Metric: *(Liter)*

Documentation: Record on Form 21236. For the Final, submit these forms with proper reference on the I.R.A.

Method of Measurement: Volumetric Measure (Liquid) - Measure each distributor load by Weight, or by Calibrated Meter. Convert to liquid volume at 60 E (16 'C) using the Mn/DOT Bituminous Manual correction factors for Asphalt Emulsion. Convert quantity of 35 % solution to eqivilent quantity.

Spec. No.: 2201
Contract Items: Concrete Base
Concrete Base, Standard Width
Concrete Base, Irregular Width
Base Reinforcement, Type

Unit - U.S.: S. Y.
Unit - Metric: *(Square Meter)*

Documentation: See Plan Quantity Note Section 410

Method of Measurement: See Plan Quantity Note.

Spec. No.: 2201 (cont.)
Contract Items: Structural Concrete

Unit - U.S.: C.Y.
Unit - Metric: (Cubic *Meter)*

Documentation: See Plan Quantity.

Method of Measurement: Engineer will pay for additional cement used in the Structural Concrete as per Specification 2301.5. Extra Work Compensation will be provided by the following formula: (Engineer shall have Documentation for total C.Y. (M) of each specific design in the records.)

$$E = \frac{(D - Y) \times C \times I \times 1.15}{2000}$$

E = (D - M) x C x I x 1.15 Metric *Equivalent*

Spec. No.: 2201 (cont.)
Contract Items: Expansion Joints, Design _____
Integrant Curb, Design _____

Unit - U.S.: L.F.
Unit - Metric: *(Meter)*

Documentation: Record on Form 28233. For the Final, submit these forms in booklet form with proper reference on the I.R.A.

Method of Measurement: Linear Feet *(meter)* Measure length of work actually performed.

Spec. No.: 2201 (cont.)
Contract Items: Dowel Bars

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record physical count. For the Final, submit records with proper reference on the I.R.A.

Method of Measurement: Dowel Bars - Physical count of the actual number of individual placed. No measurement will be made under this item that are paid for as a part of expansion joint construction.

. . . . . .

Spec. No.:
Contract Items: Reinforcement Bars

Unit - U.S.: Lb.
Unit - Metric: *(Kilogram)*

Documentation: Record on Form 2215 or 28233.For the Final submit these forms in booklet or folder form with proper reference on the I.R.A.

Method of Measurement: Weight *(Mass) (By* Computation) - Compute the mass of reinforcement bars based on the lengths shown in the Plans. The quantity measured will include only those splices, which are shown in the Plans. Use table shown in Specification 2472.4A. Do include bar supports or tie wires.

Spec. No.: 2204
Contract Items: Bituminous Material for Mixture

Unit - U.S.: Gal.
Unit - Metric: *(Liter)*

Documentation: Record quantity of material used each day on Form 24326. Show method of determining quantity under "Remarks" on first day. For the Final, submit Form 24326 in booklet or folder form with proper reference on I.R.A.

Method of Measurement: Volumetric Measure (Liquid) - Measure storage tank content at start of day; add material received; subtract material wasted, hauled off job and remaining at end of

day. Convert all bituminous material to liquid volume at 60 F (16 C). (Do not include additional water mixed with asphalt emulsions.)

Spec. No.: 2204 (cont.)
Contract Items: Bituminous Mixture, Class ____ Aggregate

Unit - U.S.: Ton
Unit - Metric: *(Metric Ton)*

Documentation: Record uniform loads on Form 28226. Record non-uniform Form 2177 with tape, slip or other accumulation, showing total for each area per day. For the Final, submit the above forms in booklet, folder or packet form, with proper reference on the I.R.A. See Delivery Tickets Note. See Uniform Load Note section 410

Method of Measurement: Weight *(Mass)* (Scale) - Weight on approved scales. Round to closest 0.1 ton (0.*1 metric ton).* Round total for each area to closest ton *(metric ton)* per day. For uniform load method, Delivery Tickets are not required.

Spec. No.: 2206
Contract Items: Soil Cement Base

Unit - U.S.: S. Y.
Unit - Metric: *(Square Meter)*

Documentation: See Plan Quantity. Section 410

Method of Measurement: See Plan Quantity.

Spec. No.: 2206 (cont.)
Contract Items: Cement
Soil
Sand Cover

Unit - U.S.: Ton
Unit - Metric: *(Metric Ton)*

Documentation: Record uniform loads on Form 28226. Record non-uniform Form 2177, with tape, slip or other accumulation showing total for each area per day. For the Final, submit the above in booklet or packet form, with proper reference on the I.R.A. See Delivery Tickets Note. See Uniform Load Note.

Method of Measurement: Weight *(Mass)* (Scale) - Weigh on approved scales. Round load to closest 0.1 ton (0.*1 metric ton).* Round total for each area to closest ton *(metric ton)* per day. For the uniform load method, Tickets are not required.

Spec. No.: 2206 (cont.)
Contract Items: Soil (LV)
Sand Cover (LV)

Unit - U.S.: C. Y.
Unit - Metric: (Cubic *Meter)*

Documentation: Record vehicle measurements and volume computations on Form 2141. Record the load-count of material used on Form 28226. For the Final, submit the above forms in booklet or folder form, with proper reference on the I.R.A. See Vehicular Measure Note.

Method of Measurement: Vehicular Measures - Measure and compute vehicle capacities to closest 0.1 C.Y. (0.1 m3). Round total for each area to the closest C.Y. (m3) per day.

Spec. No.: 2206 (cont.)
Contract Items: Bituminous Curing Material

Unit - U.S.: Gal.
Unit - Metric: *(Liter)*

Documentation: Record on Form *21841.* For the Final, submit these forms in packet form with proper reference on the I.R.A

Method of Measurement: Volumetric Measure (Liquid) - Measure each distributor load by weight, or by calibrated meter. Convert to liquid volume at 60'F (16 C). (Do not include additional water mixed with asphalt emulsions.)

Spec. No.: **2207**
Contract Items: **Bituminous Material for Mixture**

Unit - U.S.: Gal. / Liter

Documentation: Record on Form *21841.* For the Final, submit these forms in packet form with proper reference on the I.R.A.

Method of Measurement: Volumetric Measure (Liquid) - Measure each distributor load by sticking, by weight, or by calibrated meter. Convert to liquid volume at 60' F (16 'C). (Do not include additional water mixed with asphalt emulsions.)

Spec. No.: *2207* (cont.)
Contract Items: Bituminous Stabilized Sub-grade, _____*(mm)* Thick

Unit - U.S.: S.Y.
Unit - Metric: (Square Meter)

Documentation: See Plan Quantity.

Method of Measurement: See Plan Quantity

Spec. No.: **2211**
Contract Items: **Aggregate Base, Class _____**
Stockpile Aggregate, Class _____

Unit - U.S.: Ton
Unit - Metric: *(Metric Ton)*

Documentation: Record uniform loads on Form 28226. Record non-uniform loads on Form 2177 with tape, slip or other accumulation showing total for each area per day. For the Final, submit the above forms in booklet or packet form, with proper reference on the I.R.A. See Delivery Tickets. See Uniform Load.

Method of Measurement: Weight *(Mass)* (Scale) - Weigh on approved scales.

Round each load to closest 0.1 ton (0.1 *metric ton).* Round total for each area to closest ton *(metric ton)* per day. For the uniform load method, Tickets are not required.

. . . . . .

Spec. No.: 2211 (cont.)
Contract Items: Aggregate Base (LV), Class _____
Stockpile Aggregate (LV), Class_____

Unit - U.S.: C. Y.
Unit - Metric: (Cubic *Meter)*

Documentation: Record vehicle measurement and volume computations on 2141. Record the load-count of material used on Form 28226. For the Final, submit the above forms in booklet or form with proper reference on the I.R.A. See Vehicular
Measure Note section 410.

Method of Measurement: Vehicular Measure - Measure and compute vehicle capacities to closest 0.*1 C.Y (0.1 m*3). Round total for each area to the closest C.Y. *(m* 3) per day.

. . . . . .

Spec. No.: 2211 (cont.)
Contract Items: Aggregate Base (CV), Class

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: See Plan Quantity.

Method of Measurement: See Plan Quantity.

. . . . . .

Spec. No.: 2211 (cont.)
Contract Items: Stockpile Aggregate (SV), Class _____

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record x-sections notes in x-section book. Plot areas and show volume computations on x-section rolls. For

the Final, submit these records with proper reference on the I.R.A. See Records to be submitted.

Method of Measurement: Cross-Section Measure (SV - Stockpile Volume) – Compute volume using the average-end area method of the material in the stockpiled position. The Contractor shall shape the stockpile to a condition as directed by the Engineer prior to measurement.

Spec. No.: **2221**
Contract Items: **Aggregate Shouldering, Class _____**
Stockpile Aggregate, Class _____

Unit - U.S.: Ton
Unit - Metric: *(Metric Ton)*

Documentation: Record uniform loads on Form 28226. Record non-uniform loads on Form 2177 with tape, slip or other accumulation showing total for each area per day. For the Final, submit the above forms in booklet or packet form with proper reference on the I.R.A. See Delivery Tickets. See Uniform Load note in section 410

Method of Measurement: Weight (Mass) (Scale) - Weigh on approved scales. Round to closest 0.1 ton *(0. 1 metric ton).* Round total for each area to closest ton *(metric ton)* per day. For the uniform load method, Tickets are not required.

. . . . . .

Spec. No.: 2221 (cont.)
Contract Items: Aggregate Shouldering (LV), Class _____

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record vehicle measurements and volume computations on Form 2141. Record the load-count of material used on Form 28226. For the Final, submit the above forms in booklet or folder form with proper reference on the I.R.A. See Vehicular Measure section 410

Method of Measurement: Vehicular Measure - Measure and compute vehicle capacities to closest 0.1 C.Y (0. 1 m3). Round total for each area to the closest C.Y. *(m3)* per day.

Spec. No.: 2221 (cont.)
Contract Items: Stockpile Aggregate (LV), Class _____

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record vehicle measurement and volume computations on Form 2141. Record the load count of material used on Form 28226. For the Final, submit the above forms in booklet or folder form with proper reference on the I.R.A. See Vehicular Measure.Sect.410

Method of Measurement: Vehicular Measure - Measure and compute vehicle capacities to closest 0.1 C.Y (0.1 m*3)*. Round total for each area to closest C.Y. *(M)* per day.

Spec. No.: 2221 (cont.)
Contract Items: Stockpile Aggregate (SV)

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record x-section notes in x-section book. Plot areas and show volume computations on x-section rolls. For the Final, submit the x-section books and rolls with proper reference on the I.R.A. See Records to be submitted.

Method of Measurement: Cross-Section Measure (SV - Stockpile Volume) - Compute using the average end area method of the material in the stockpiled position. The Contractor shall shape the stockpile to a condition as directed by the Engineer prior to measurement.

Spec. No.: 2221 (cont.)
Contract Items: Aggregate Shouldering (CV), Class _____

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: See Plan Quantity in Section 410

Method of Measurement: See Plan Quantity.

Spec. No.: **2231**
Contract Items: **Bituminous Patching Mixture**

Unit - U.S.: Ton
Unit - Metric: *(Metric Ton)*

Documentation: Record uniform loads on Form 28226. Record non-uniform on Form 2177, with tape, slip or other accumulation showing total for each area per day. For the Final, submit the above forms in booklet or packet form with proper reference on the I.R.A. See Delivery Tickets. See Uniform Load.

Method of Measurement: Weight (Mass) (Scale) - Weigh on approved scales. Round each load to closest 0.1 ton (0.1 *metric ton).* Round total for each area to closest ton *(metric ton)* per day. For uniform load method, Tickets are not required.

Spec. No.: 2231 (cont.)
Contract Items: Bituminous Patching Mixture

Unit - U.S.: C. Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record vehicle measurements and volume computations on Form 2141. Record the load-count of material used on Form 28226. For the Final, submit these forms in booklet or folder form with proper reference on the I.R.A. See Vehicular Measure in Section 410.

Method of Measurement: Vehicular Measure - Measure and compute vehicle capacities to closest 0.1 C.Y (0.1 m*3)*. Round total for each area to the closest C.Y. *(m3)* per day.

Spec. No.:	2231 (cont.)
Contract Items:	Mixture for Joints and Cracks
Unit - U.S.:	100 lbs. (Cwt)
Unit - Metric:	(Kilogram)
Documentation:	Record uniform loads on Form 28226. Record non-uniform loads on Form 2177, with tape, slip or other accumulation showing total for each area per day. For the Final, submit the above forms in booklet or packet form with proper reference on the I.R.A. See Delivery Tickets. See Uniform Load note in section 410.
Method of Measurement:	Weight *(Mass)* (Scale) - Weigh on approved scales. Round each load to closest 10 pounds (5 *kg).* Round total for each area to closest Cwt. *(kg)* per day. For uniform load method, Tickets are not required.

Spec. No.:	2231 (cont.) Contract Items:
Unit - U.S.:	Lb.
Unit - Metric:	(Kilogram)
Documentation:	Record on Form 28226.For the Final, submit Forms 28226 in booklet form with proper reference on the I.R.A.
Method of Measurement:	Weight *(Mass) (By* Computation) - Count containers of sealer used and multiply by pounds ft) per container.

Spec. No.:	**2232**
Contract Items:	**Mill Bituminous Surface** **Mill Concrete Pavement Surface**
Unit - U.S.:	S.Y.
Unit - Metric:	*(Square Meter)*
Documentation:	Record measurements and computations. For the Final, submit these records with proper reference on the I.R.A

Method of Measurement: Area Computations - Measurements and computations will be those areas milled as specified, based on actual finished dimensions of the work.

Spec. No.: **2301**

Contract Items: **Concrete Pavement**
Concrete Pavement, Standard Width
Concrete Pavement, Irregular Width
Pavement Reinforcement, Type _____

Unit - U.S.: SY.
Unit - Metric: *(Square Meter)*

Contract Items: Structural Concrete
Structural Concrete, HE (High Early Strength)

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: See Plan Quantity.

Method of Measurement: See Plan Quantity.

Note: *Engineer will pay for additional cement used in the Structural Concrete as per Specification 2301.5. Extra Work Computation will be provided for by the following formula:*

* *

2301.5(l) *Standard Strength Concrete*

$$E = \frac{(D - M) \times C \times I \times 1.15}{2000}$$

(E) =*Extra pay for additional cement*
(D) =*Design Cement in pounds/C. Y (From Form 2155)*
(M) = Minimum Cement in pounds/C. Y (From 2461.3C or Spec. Provisions)
(C) = *C.Y Concrete at specific design excluding waste (Total C. Y. Concrete will not exceed the final quantity of the Structural Concrete pay item)*
(I) =Invoice price of cement per ton

E = (D - M) x C x I x 1. 15 Metric equivalent

E = (D - M) x C x I x 1. 15 Metric equivalent

(E) = Extra Pay for additional cement
(D) = Design Cement in *kilograms/cubic meter* (From form *2155)*
(M) = Minimum Cement in minimum Cement in *kilograms/cubic meter* (From 2461.3C or Spec. Provisions)
(C) = *Cubic Meter* Concrete at specific design excluding waste (Total *Cubic Meter* Concrete will not exceed the final quantity of the Structural Concrete pay item.) Invoice price of cement per *kilogram.*

* *

2301.5(2) *-High Early Strength Concrete furnished and placed at the Contractor's discretion with the Engineer's approval, beyond the Contract requirements and without the Engineer's order.*

$$E = \frac{(D - M) \times C \times I \times 1.15}{2000}$$

(E) = Extra pay for additional cement
(D) = Design Cement in pounds/C. Y (From Form 2155)
(M)= Minimum Cement in pounds/C. Y from 2461.3C *or Spec. Provisions as established in the Standard Strength Concrete*
(C) = C. Y Concrete at specific design excluding waste (Total C. Y Concrete will not exceed the final quantity of the Structural Concrete pay item.)
(I) = Invoice price of cement per ton

E=(D-M) x C x I x l.l5 Metric equivalent

(E) Extra pay for additional cement
(D) Design Cement in *kilograms/cubic meter* (From form 2155)
(M)= Minimum Cement in *kilograms/cubic meter* (From 2461.3C or Spec. Provisions)
(C) = *Cubic Meter* Concrete at specific design excluding waste (Total *Cubic Meter* Concrete will not exceed the final quantity of the Structural Concrete pay item.)

* *

2301.5(3) - High Early Strength Concrete furnished as a separate pay item (2301.513 Structural Concrete H.E.)

$$E = \frac{(D - M) \times C \times I \times 1.15}{200}$$

(E) = Extra pay for additional cement
(D) = Design Cement in pounds/C.Y. (From Form 2155)
(M) = Minimum from Standard Strength Concrete plus 30%

Example: Standard Minimum (530#) + 30% H.E. (159) = H.E. Minimum (689#)
(C) = C.Y. Concrete at specific design excluding waste (Total C.Y. Concrete will not exceed the final quantity of the Structural Concrete pay item.)
(I) = Invoice price of cement per ton

E = (D - M) x C x I x 1.15 ***Metric equivalent***

(E) Extra, Pay for additional cement
(D) = Design Cement in *kilogram/cubic meter* (From form 2155)
(M) = Minimum from Standard Strength Concrete plus 30%
Example: Standard Minimum (240 *kg)* + *30*% HE. (72 *kg)* = *H*.E. Minimum (312 *kg)*
(C) =*Cubic Meter* Concrete at specific design excluding waste (Total *Cubic Meter* Concrete will not exceed the final quantity of the Structural Concrete pay item.)
(I) = Invoice price of cement per *kilogram.*

* *

2301.5(4) - <u>High Early Strength Concrete ordered by the Engineer without a separate pay item</u>. Extra work is paid for as 20% of Contract Unit Price.

$$E = \frac{(D - M) \times C \times I \times l.15 + 0.02 \times B}{2000}$$

(E) = Extra pay for additional cement
(D) = Design Cement in pounds/C.Y. (From Form 2155
(M) Minimum from Standard Strength Concrete plus 30%

Example: Standard Minimum (530#) + 30% H.E. (159) = H.E. Minimum (689#)
(C) C.Y. Concrete at specific design excluding waste (Total C.Y. Concrete will not exceed the final quantity of the Structural Concrete pay item.)
(1) = Invoice price of cement per ton
(B) = Contract Unit Price per Cubic Yard

E = (D - M) x C x Ix 1.15) + 0.02 x B x C *Metric equivalent*

(E) = Extra, Pay for additional cement
(D) = Design Cement in *kilograms/cubic meter (From* form 2155)
(M) = Minimum from Standard Strength Concrete plus 30%
Example: Standard Minimum (240 *kg) + 30%* H.E. (72 *kg)* = H.E. Minimum (312 *kg)*
(C) Cubic Meter Concrete at specific design excluding waste (Total *Cubic Meter* Concrete
will not exceed the final quantity of the Structural Concrete pay item.)
(I) = Invoice price of cement per *kilogram.*
(B) = Contract unit Price per *cubic meter.*
Documentation for 2301.5(l) - 2301.5(4) - Reference computations on the I.R.A. Submit the I.R.A. for Final Pay.

* *

2301.3M - <u>Extreme Service Membrane Cure</u>

Will be provided at the rate of $0.225 per square yard ($0.25 per square meter) of Concrete Pavement placed requiring this type of cure.Payment will be made as a "Backsheet " item.

Spec. No.: 2301 (cont.)
Contract Items: Bridge Approach Panels, Design ______

Unit - U.S.: S.Y.
Unit - Metric: (Square Meter)

Documentation: Record on Form 28233. For the Final, submit these forms in booklet form with proper reference on the I.R.A.

Method of Measurement: <u>Area Computation</u> - Measure and compute the area of pavement as constructed.

. . . .

Spec. No.: 2301 (cont.)
Contract Items: Bridge Approach Panels, Design _____

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record physical count. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Unit - Measure as a complete in-place item.

Spec.
No.: 2301 (cont.)
Contract Items: Dowel Bar

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record physical count. For the Final, submit records with proper reference on the I.R.A.

Method of Measurement: Unit – Physical count.

Spec. No.: 2301 (cont.)
Contract Items: Concrete Coring

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record physical count. For the Final, submit records with proper reference on the I.R.A.

Method of Measurement: Unit - Physical count.

Spec. No.: 2301 (cont.)
Contract Items: Reinforcement Bars Epoxy Coated

Unit - U.S.: Lb.
Unit - Metric: (Kilogram)

Documentation: Record on Form 2215 or 28233. For the Final, submit these forms in booklet or folder form with proper reference on the I. R. A.

Method of Measurement: Weight (Mass) (By Computation) - Compute the mass of reinforcement bars, prior to coating with epoxy, based on the lengths shown in the Plans. The quantity measured will include only those splices that are shown

in the Plans. Use table shown in Specification 2472.4A. Do not include bar supports or tie wires.

Spec. No.: 2301 (cont.)
Contract Items: Expansion Joints, Design _____
Integrant Curb, Design _____

Unit - U. S.: L. F.
Unit - Metric: (Meter)

Documentation: Record on Form 28233. For the Final, submit these forms in booklet form with proper reference on the I.R.A.

Method of Measurement: Linear Feet (meter) - Measure length of work actually performed.

Spec. No.: 2321
Contract Items: Bituminous Material for Mixture

Unit - U.S.: Gal
Unit - Metric: (Liter)

Documentation: Record on Form 21841. For the Final, submit these forms in form with proper reference on the I.R.A.

Method of Measurement: Volumetric Measure (Liquid) - Measure each load by sticking, by calibrated meter. Convert to liquid volume at 60' F (16 'C). (Do not include additional water mixed with asphalt emulsion.)

Note: Fog seal material will be measured and included with the Bituminous Materialfor Mixture.

Spec. No.: 2321 (cont.)
Contract Items: Aggregate
Stockpile Aggregate, Class _____

Unit - U.S.: Ton
Unit - Metric: *(Metric Ton)*

Documentation: Record uniform loads on Form 28226. Record non-uniform loads on Form 2177. Automatic printout type tickets may be substituted for either of the above two methods. For the Final, submit the above forms in booklet, packet or bundle form, with proper reference on the I.R.A. See Delivery Tickets. See Uniform Load note in section 410.

Method of Measurement: Weight (Mass) (Scale) - Weigh on approved scales. Round each load to closest 0.1 ton (0.1 *metric ton*). Round total for each area to closest ton *(metric ton)* per day. For uniform load method, Tickets are not required.

. . . . . .

Spec. No.: 2321 (cont.)
Contract Items: Aggregate
Stockpile Aggregate, Class _____

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record vehicle measurements and volume computations on Form 2141. Record the load-count of material used on Form 28226. For the Final, submit these forms in booklet or folder form with proper reference on the I.R.A. See Vehicular Measure.

Method of Measurement: Vehicular Measure - Measure and compute vehicle capacities to closest 0.1 C.Y. (0. 1 *m3)* Round total for each stockpile to the closest C.Y. (W) per day.

Note: When 2321 material is mixed in a hot mix Plant, convert recorded weights to individual quantities of aggregate and bituminous material, and show computations.

Spec. No.: 2331
Contract Items:
Wearing Course Mixture
Binder Course Mixture
Leveling Course Mixture
Base Course Mixture
Shoulder Mixture
Bituminous Mixture for (Specific Purpose)
Bituminous Mixture Production

Type _____, _____ Course Mixture

Unit - U.S.: Ton
Unit - Metric: *(Metric Ton)*

Documentation: Record non-uniform loads on Form 2177.
Record uniform loads on either Form 28226 or Form 2177.

Automatic printout tickets may be substituted for either of the above two methods.

For the Final, submit these Forms or automatic printout tickets in booklet, packet or bundle form with proper reference on the LR.A.

Sq. Yd. In. *(Square Meter, Millimeter)* - Record computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Weight *(Mass)* (Scale) - Non-uniform loads weigh on approved scales. Round each load to the closest 0.1 ton (0.1 *metric ton).*

Weight *(Mass)* (Sq. Yd. Inch (Square *Meter, Millimeter* Measure area in square yards (W) and compute weight based on thickness.

Uniform Loads - Weigh on approved scales. Round each load to the closest ton (0.1 *metric ton).* If Form 2177 is used, the first ticket each day and the first ticket reflecting any subsequent changes in batch weight and/or number of batches per load, shall be modified to include: (1) Weight per batch, (2) number of batches per load, and (3) total weight per load.

. . . . . .

Spec. No.: 2331 (cont.)
Contract Items: Irregular Width Paving
Type _____, _____ Course Mixture, _____, mm thick

Unit - U.S.: S. Y.

Unit - Metric: *(Square Meter)*

Documentation: Record measurements and computations. For the Final, submit these records with proper reference on the I.R.A.

Method *of* Measurement: Area Computation - Measurements and computations will be based on actual surface dimensions as placed.

Note: If either mineral filler or hydrated lime is to be required, the Item Name must be expanded by adding the words: (with Filler) or (with Lime).

Spec. No.: 2340 Plant Mixed Bituminous Pavement Quality Control / Quality Assurance (Type 31,41, 47,61)

Contract Items:
Wearing Course Mixture
Binder Course Mixture
Leveling Course Mixture
Base Course Mixture
Shoulder Mixture
Bituminous Mixture for (Specific Purpose)
Bituminous Mixture Production
Type_____, _____ Course Mixture
Contractor Testing - (A)

(A)- Payment for Contractor Testing item No. 2340.501 by the ton (metric ton) will be made only when the pay item is specified in the Contract. If specified, payment for Contractor Testing of the plant mixed bituminous surface will be compensation for all costs of the required testing. Contractor Testing will be paid for as follows :Item 2340.501 - Contractor Testing

Unit - U.S.: Ton
Unit - Metric: *(Metric Ton)*

Documentation: Record Computations. For the Final, submit these Forms or automatic printout tickets in booklet, packet or bundle form with proper reference on the IRA.

Method of Measurement: Weight *(Mass)* (Scale) - Based on the mass of plant mixed bituminous mixture used and tested.

. . . . . .

Spec. No.: 2340 (cont.)
Contract Items: Wearing Course Mixture
Binder Course Mixture
Shoulder Mixture
Leveling Course Mixture
Base Course Mixture
Bituminous Mixture for (Specific Purpose)
Bituminous Mixture Production

Unit - U.S.: Ton
Unit - Metric: *(Metric Ton)*
Documentation: Record non-uniform loads on Form 2177. See Delivery Tickets.

Record uniform loads on either Form 28226 or Form 2177. See Uniform Load.

Automatic printout tickets may be substituted for either of the above two methods.

For the Final, submit these Forms or automatic printout tickets in booklet, packet or bundle form with proper reference on the I.R.A.

Method of Measurement: Weight *(Mass)* (Scale) - Non-uniform loads weigh on approved scales. Round each load to the closest 0.1 ton (0.1 *metric ton).* Uniform Loads - Weigh on approved scales. Round each load to the closest 0.1 ton (0.1 *metric ton).* If Form 2177 is used, the first ticket each day and the first ticket reflecting any subsequent changes in batch weight and/or number of batches per load, shall be modified to include:

(1) Weight per batch, (2) Number of batches per load and
(3) Total weight per load.

Note: If either mineral filler or hydrated lime is to be required, the Item Name must be expanded by adding the words: (with Filler) or (with Lime).

Spec. No.: 2340 (cont.)
Contract Items: Irregular Width Paving

Unit - U.S.: Sq. Yd.
Unit - Metric: *(Square Meter)*

Documentation: Record measurements and computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Area Computation - Measurements and computations will be based on actual surface dimensions as placed.

Spec. No.: 2350
Plant Mixed Asphalt Pavement
Quality Control / Quality Assurance
(Type LV- MV - HV)

Contract Items:
Type (1) (2) Wearing Course Mixture *(4) Metric ton (**ton**)*
Type (1) (2) Non Wearing Course Mixture *(4) Metric ton (**ton**)*
Type (1) (2) (3) Course mixture (4), (5) mm (inch) thick *Square Meter (**Square yard**)*
Type (1) (2) (3) Course Mixture *(4) (**Square Yard Inch**)*
Type (1) (2) Bituminous Mixture for Specified Purpose *Metric ton (**ton**)*
Type (1) (2) Bituminous Mixture Production *-Metric ton (**ton**)*
(1)- Traffic Level Designation (L VMV or HV as appropriate)
(2)- Aggregate size designation
(3)- "Wearing" or "Non Wearing" as appropriate
(4) -A C Grade Designation
(5)- Specified Lift Thickness

Unit - U.S.: Ton
Unit - Metric: *(Metric Ton)*

Documentation: Record non-uniform loads on Form 2177.

Record uniform loads on either Form 28226 or Form 2177.

Automatic printout tickets may be substituted for either of the above two methods. For the Final, submit these Forms or automatic printout tickets in booklet, packet or bundle form with proper reference on the LR.A.

Sq. Yd. In. (*Square Meter, Millimeter)* - Record computations. For the Final, submit these records with proper reference on the I.R.A. *

Method of Measurement: Weight *(Mass)* (Sq. Yd. Inch (Square *Meter, (Millimeter)*
Measure area in square yards *(m2)* and compute weight based on thickness. *

** - Asphalt Mixtures measured by the Square Meter (Square Yard) per specified thickness (mm or inch) and for mixtures measured by the Square Yard Inch. Asphalt mixture of each type and for each specific course will be measured separately by area and the thickness shall be based on the planned dimensions.*

Note: In the absence of appropriate Contract items covering shoulder surfacing and other special construction, the accepted quantities of material used for these purposes will be included for payment with the wearing course materials.

Weight *(Mass)* (Scale) - Non-uniform loads weigh on approved scales. Round each load to the closest 0.1 ton (0.1 *metric ton).*

Uniform Loads - Weigh on approved scales. Round each load to the closest ton (0.1 *metric ton). If* Form 2177 is used, the first ticket each day and the first ticket reflecting any subsequent changes in batch weight and/or number *of* batches per load, shall be modified to include: (1) Weight per batch, (2) number of batches per load, and (3) total weight per load.

. . . . . .

Spec. No.: 2350 (cont.)
Contract Items: Type _____, _____Course Mixture, _____ mm thick

Unit - U.S.: S. Y.
Unit - Metric: *(Square Meter)*

Documentation: Record measurements and computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Area Computation - Measurements and computations will be based on actual surface dimensions as placed.

Spec. No.: 2355
Contract Items: Bituminous Material for Fog Seal

Unit - U.S.: Gal.
Unit - Metric: *(Liter)*

Documentation: Record volume on Form 21841. For the Final, submit these forms in booklet or packet form with proper reference on the I.R.A.

Method of Measurement: Volumetric Measure - Measure each distributor load by sticking, by weight or by calibrated meter. Convert to liquid volume at 600 F (16 Y). (Do not include additional water mixed with asphalt emulsions.)

Spec. No.: 2356
Contract Items: Bituminous Material for Seal Coat

Unit - U.S.: Gal.
Unit - Metric: *(Liter)*

Documentation: Record volume on Form 21841. For rile Final, submit these forms in booklet or packet form with proper reference on the I.R.A.

Method of Measurement: Volumetric Measure - Measure each distributor load by sticking, by weight or by calibrated mater. Convert to liquid volume at 60 'P (16 'C). (Do not include additional water mixed with asphalt emulsions.)

Spec. No.: 2356 (cont.)
Contract Items: Seal Coat Aggregate

Unit - U.S.: Ton
Unit - Me

tric: *(Metric Ton)*

Documentation: Record uniform loads on Form 28226. Record non-uniform loads on Form 2177 with tape, slip or other accumulation showing total per day. For the Final, submit these Forms in booklet or packet form with proper reference on the I.R.A. See Delivery Tickets. See Uniform Load.

Method of Measurement: Weight (Mass) (Scale) - Weigh on approved scales. Round each load to closest 0.1 ton (0.1 *metric ton).* Round total for each area to closest ton *(metric ton)* per day.

Spec. No.: 2356 (cont.)
Contract Items: Seal Coat Aggregate (LV)

Unit - U.S.: C.Y.
Unit - Metric: (Cubic *Meter)*

Documentation: Record vehicle measurements and computations on Form 2141.

Record the load-count of material used on Form 28226.

For the

Final, submit these forms in booklet or folder form with proper reference on the I.R.A. See Vehicular Measure.

Method of Measurement: Vehicular Measure - Compute vehicle capacities to the closest 0.1 C.Y (0.1 m3) Round total for each area to the closest C .Y. (W) per day.

Spec. No.: 2357
Contract Items: Bituminous Material for Tack Coat

Unit - U.S.: Gal.
Unit - Metric: *(Liter)*

Documentation: Record volume on Form 21841. For the Final, submit these Forms in booklet or packet form with proper reference on the I.R.A.

Method of Measurement: Volumetric Measure - Measure each distributor load by sticking, by weight or by calibrated meter. Convert to liquid volume at 60 'F (16 'C). (Do not include additional water mixed with asphalt emulsions.)

Spec. No.: **2358**
Contract Items: **Bituminous Material for Prime Coat**

Unit - U.S.: Gal.
Unit - Metric: *(Liter)*

Documentation: Record volume on Form 21841. For the Final, submit these forms in booklet or packet form with proper reference on the I.R.A.

Method of Measurement: Volumetric Measure - Measure each distributor load by sticking, by weight or by calibrated meter. Convert to liquid volume at 60' F (16 'C).

Spec. No.: **2360**
Plant Mixed Bituminous Pavement (Super pave)

Contract Items:
Type SP (1) Wearing Course Mixture *(3) (4) Metric ton (**ton**)*
Type SP (1) Non Wearing Course Mixture *(3) (4) Metric ton(**ton**)*
Type (1) (2) Course mixture (3) (4), (5) min (inch) thick
*Square Meter (**Square yard**)*
Type (1) (2) (3) Course Mixture (4) *(**Square Yard Inch**)*
Type (1) Bituminous Mixture for Specified Purpose
*Metric ton (**ton**)*
Type *(1)* Bituminous Mixture Production -Metric *ton (**ton**)*
(1)- Aggregate size designation
(2)- "Wearing" or "Non Wearing" as appropriate
(3)- Traffic Level as per table 2360-1 in 2000 Specifications
(4) -AC binder grade Designation
(5)- Specified Lift Thickness

Note: In the absence of appropriate Contract items covering *shoulder surfacing* and other special construction, the accepted quantities *of* material *used for these purposes* will *be included for* payment with *the wearing* course materials.

Unit - U.S.: Ton
Unit - Metric: (Metric Ton)

Documentation: Record non-uniform loads on Form 2177.

Record uniform loads on either Form 28226 or Form 2177.

Automatic printout tickets may be substituted for either of the above two methods. For the Final, submit these Forms or automatic printout tickets in booklet, packet or bundle form with proper reference on the LR.A.

Sq. Yd. In. *(Square Meter, Millimeter) - Record* computations. For the Final, submit these records with proper reference on the I.R.A.*

Method of Measurement: Weight *(Mass)* (Sq. Yd. Inch (Square *Meter, (Millimeter)* - Measure area in square yards (*m2*) and compute weight based on thickness. *

**For Asphalt Mixtures measured by the Square Meter (Square Yard) per specified thickness (mm or inch) and for mixtures measured by the Square Yard Inch. Asphalt mixture of each type and for each specific course will be measured separately by area and the thickness shall be based on the planned dimensions.*

Weight *(Mass)* (Scale) - Non-uniform loads weigh on approved scales. Round each load to the closest 0.1 ton (0.1 *metric ton).*
Uniform Loads - Weigh on approved scales. Round each load to the closest ton (0.1 *metric ton).* If Form 2177 is used, the first ticket each day and the first ticket reflecting any subsequent changes in batch weight and/or number of batches per load, shall be modified to include: (1) Weight per batch, (2) number of batches per load, and (3) total weight per load.

Spec. No.: 2360 (cont.)
Contract Items: Type _____, _____ Course Mixture, _____, mm thick

Unit - U.S.: S. Y.
Unit - Metric: *(Square Meter)*

Documentation: Record measurements and computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Area Computation - Measurements and computations will be based on actual surface dimensions as placed.

Spec. No.: 2401
Contract Items: Structure Concrete (Grade or Mix No.)
Structure Excavation, Class _____

Unit - U. S.: C. Y.
Unit - Metric: *(Cubic Meter)*

Documentation: See Plan Quantity.

Method of Measurement: See Plan Quantity.

Spec. No.: 2401 (cont.)
Contract Items: Structure Concrete (Grade or Mix No.)
Bridge Slab Concrete (Mix No.)
Sidewalk Concrete (Mix. No.)
Raised Median Concrete (Mix No.)

Unit - U.S.: S.F.
Unit - Metric: *(Square Meter)*

Documentation: See Plan Quantity.

Method of Measurement: See Plan Quantity.

Spec. No.: 2401 (cont.)
Contract Items: Type _____Railing Concrete (Mix No.)
Median Barrier Concrete (Mix No.)

Unit - U.S.: L. F.
Unit - Metric: *(Meter)*

Documentation: See Plan Quantity.

Method of Measurement: See Plan Quantity.

Spec. No.: 2401 (cont.)
Contract Items: Reinforcement Bars Delivered
Reinforcement Bars Placed
Reinforcement Bars
Steel Fabric
Spiral Reinforcement

Unit - U.S.: Lb.
Unit - Metric (Kilogram)

Documentation: Record on Form 2215. For the Final, submit these forms in booklet
or folder form with proper reference on the I.R.A.

Method of Measurement: Weight *(Mass) (By* Computation) - Compute the mass of re-bars based on the lengths shown in the Plans. The quantity measured will include only those splices, which are shown in the Plans. Use the table shown in Specification 2472.4A. Do not include bar supports or tie wires. For Steel Fabric compute the mass incorporated into the structure based on the quantity shown in the plans. Spiral Reinforcement is based on the mass shown in the Mn/DOT Bridge Construction Manual.

Spec. No.: 2402
Contract Items: Structural Metals
(All items paid for by the pound (kilogram))

Unit - U.S.: Lb.
Unit - Metric: (Kilogram)

Documentation: Record computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Weight Mass (By Computation)- Compute the mass of all structural metals based on the net finished dimensions shown in the Plans using a density of 490 lbs. per cubic foot (7849 *kg/m3).*

Spec. No.: 2402 (cont.)
Contract Items: Floor Drains, Type _____
Bearing Assemblies
Elastomeric Bearing Pads, Type _____
Elastomeric Bearing Assemblies, Type _____

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record on the I.R.A. For the Final, submit the I.R.A. as Source Documentation.

Method of Measurement: Unit - Physical count.

Spec. No.: 2402 (cont.)
Contract Items: Ornamental Metal Railing
Pipe Railing
Plate Railing
Expansion Joint Devices, Type _____

Unit - U.S.: L. F.
Unit - Metric: *(Meter)*

Documentation: See Plan Quantity.

Method of Measurement: See Plan Quantity.

Spec. No.: 2403
Timber Bridge Construction

Contract Items: Untreated Timber
Treated Timber

Unit - U.S.: 1000 Board Feet
Unit - Metric: (Cubic *Meter)*

Documentation: Record computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Miscellaneous - Measurements and computations based on nominal sizes and lengths incorporated in the structure.

Spec. No.: 2403 (cont.)
Contract Items: Hardware

Unit - U.S.: Lb.
Unit - Metric: (Kilogram)

Documentation: Record computations. For the Final, submit these records with proper references on the I.R.A.

Method of Measurement: Weight (Mass) (By Computation) - Compute the hardware mass based on the unit of mass shown in the plans. (Do not include the mass of rails, dowels, or panel hardware in quantities for payment.)

Spec. No.: 2403 (cont.)
Contract Items: Prefabricated Timber Panels, Type _____
Glued Laminated Deck Panels, Type _____

Unit: - U.S.: Each
Unit - Metric: Each

Documentation: Record on the I.R.A. For the Final, submit the I.R.A. as Source Documentation.

Method of Measurement: Unit - Physical count. (Panel hardware is included in this item).

Spec. No.: 2404
Contract Items: Concrete Wearing Course (Type or Mix No.)

Unit - U.S.: S.F.
Unit - Metric: *(Square Meter)*

Documentation: Record measurements and computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Area Computation - The Concrete Wearing Course will be measured by surface area, as computed from specific dimensions. No deduction will be made for the surface area of expansion devices or other miscellaneous appurtenances.

Spec. No.: **2405**
Contract Items: **Pre-stressed Concrete Beams, Type _____**
Pre-stressed Concrete Double Tee-Beams, Type _____
Pre-stressed Concrete Bulb Tee-Beams, Type _____

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record on the I.R.A. For the Final, submit the I.R.A. as Source Documentation.

Method of Measurement: Unit - Physical count.

. . . . . .

Spec. No.: 2405 (cont.)
Contract Items: Pre-stressed Concrete Beams

Unit - U.S.: L.F.
Unit - Metric: *(Meter)*

Documentation: Record measurements on the I.R.A. For the Final, submit the I.R.A. as Source Documentation.

Method of Measurement: Linear Foot *(meter)* - Measured by summation of the individual lengths, out to out, along the centerlines of beams.

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Spec. No.: 2405 (cont.)
Contract Items: Diaphragms for Type _____ Pre-stressed Beams

Unit - U.S.: L.F.
Unit - Metric: *(Meter)*

Documentation: Record measurements on the I.R.A. For the Final, submit the I.R.A. as Source Documentation.

Method of Measurement: Linear Foot *(meter)* - Measure horizontal distance of intermediate diaphragms from centerline to centerline of beam along axis of the diaphragms.

Spec. No.: 2411
Contract Items: Structure Excavation Class _____
Structure Concrete (Grade or Mix No.)

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: See Plan Quantity.
Method of Measurement: See Plan Quantity.

Spec. No.: 2411 (cont.)
Contract Items: Concrete (Type of Structure)

Unit - U.S.: S.Y.
Unit - Metric: *(Square Meter)*

Documentation: Record measurements and computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Area Computation - Measurements and computations will be based on actual surface dimensions as placed.

Spec. No.: 2411 (cont.)
Contract Items: Reinforcement Bars
Unit - U.S.: Lb.
Unit - Metric: (Kilogram)
Documentation: Record on Form 2215. For the Final, submit these forms in booklet or folder with proper reference on the I.R.A.

Method of Measurement: Weight (Mass) (By Computation) - Compute the mass of reinforcement bars based on the lengths shown in the Plans. The quantity measured will include only those splices, which are shown in the Plans. Use table shown in Specification 2472.4A. Do not include bar supports or tie wires.

. . . . . .

Spec. No.: 2411 (cont.)
Contrail Items: Granular Backfill (CV)
Aggregate Backfill (CV)

Unit - U.S.: C. Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record measurements and computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Volumetric Measure (By Computation) - Computations will be based on the dimensions shown in the Plans, described in the Specifications, or designated by the Engineer.

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Spec. No.: 2411 (cont.)
Contract Items: Granular Backfill (LV)
Aggregate Backfill (LV)

Unit -U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record vehicle measurements and volume computations on Form 2141. Record the load-count of materials used on Form 28226. For the Final, submit the above Forms in booklet or folder form, with proper reference on the I.R.A. See Vehicular Measure.

Method of Measurement: Vehicular Measure - Measure and compute vehicle capacities to closest 0.1 C.Y. (0.1 m) Round the total for each area to the closest C.Y. *(M)* per day.

. . . . . .

Spec. No.: 2411 (cont.)
Contract Items: Concrete Structures, Design _____

Concrete (Type of Structure) _____

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record physical count. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Unit - Physical count.

Spec. No.: **2412**

Contract Items: **____mm____ (mm) Pre-cast Concrete Box Culvert**

Unit - U.S.: L. F.
Unit - Metric: *(Meter)*

Documentation: Record measurements. For the Final, submit these records with proper reference on the IR.A.

Method of Measurement : Linear *Foot (meter)* - Measured as a summation of the nominal laying lengths of the individual sections incorporated into each structure. Transition sections measured for payment as the larger (or more costly) size.

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Spec. No.: 2412 (cont.)
Contract Items: ____ mm ____ *(mm)* Pre-cast Concrete Box Culvert
End

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record physical count. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Unit - Physical count.

Spec. No.: **2413**
Contract Items: **Timber Box Culvert, (Specify Size)**

Unit - U.S.: L.F.
Unit - Metric: *(Meter)*

Documentation: Record measurements. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Linear *Foot (meter)* - *Measure* along centerline of the barrel section. (Do not include the end sections.)

Spec. No.: 2413 (cont.)
Contract Items: Timber Box Culvert End Section, (Specify Size)

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record physical count. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Unit - Physical count.

Spec. No.: 2422
Contract Items: Structure Excavation, Class _____

Unit -U.S.: C. Y.
Unit - Metric: *(Cubic Meter)*

Documentation: See Plan Quantity.
Method of Measurement: See Plan Quantity.

Spec. No.: 2422 (cont.)
Contract Items: Metal Crib Walls
Concrete Crib Walls

Unit - U.S.: S.F.
Unit - Metric: (Square *Meter)*

Documentation: Record measurements and computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Area Computation - Measure and compute the area of the front face of wall, based on actual completed dimensions.

Spec. No.: 2422 (cont.)
Contract Items: Earth Crib Filling
Gravel Crib Filling
Rock Crib Filling

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record vehicle measurements and computations on Form 2141. Record load-count of material used on Form 28226. For the final, submit these Forms with proper reference on the I.R.A. See Vehicular Measure.

Method of Measurement: Vehicular Measure - Compute vehicle capacities to closest 0.1 C.Y. *(0.1 m3)* Round total for each area to closest C.Y. *(m3)* per day.

Spec. No.: 2433
Contract Items: Structure Removals
Remove (Item Name)
Place Used (Item Name)

Unit - U.S.: L.S.
Unit - Metric: L.S.

Documentation: Record on the I.R.A. as a decimal for partial estimate. For the Final, submit the I.R.A. as Source Documentation.

Method of Measurement: Lump Sum - Engineer will estimate the dollar-value percentage of the completed work.

Spec. No.: 2433 (cont.)
Contract Items: Remove (Item Name)
Place Used (Item Name)

Unit - U. S.: Lb.
Unit - Metric: (Kilogram)

Documentation: Record Structural Metals Engineer's quantities on the I.R.A. For the Final, submit these reports in folder or booklet form with proper reference on the I.R.A.

Method of Measurement: Miscellaneous - Contractor will furnish physical properties to Structural Metal's Engineer.

Spec. No.: 2433 (cont.)
Contract Items: Remove (Item Name)

Unit - U.S.: C. Y.
Unit - Metric: (Cubic *Meter)*

Documentation: Record measurements and computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Volumetric Measure (By Computation) - Measure length, width and depth and compute volume. No additional compensation will be made for reinforcement encountered in removal.

Spec. No.: 2433 (cont.)
Contract Items: Place Used (Item Name)
Unit - U.S.: 1000 Board Feet
Unit - Metric: *(Cubic Meter)*

Documentation: Record measurements and computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement : Miscellaneous - Measurement and computations based on nominal sizes and actual length measurements.

Spec. No.: 2433 (cont.)
Contract Items: Remove (Item Name)

Unit - U.S.: S. F.
Unit - Metric: *(Square Meter)*

Documentation: Record measurements and computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Area Computation - Measure and compute the area using the actual width and length measurements.

Spec. No.: 2433 (cont.)
Contract Items: Remove (Item Name)
Place Used (Item Name)

Unit - U.S.: L.F.
Unit - Metric: *(Meter)*

Documentation: Record measurements. For the Final, submit the records with proper reference on the I.R.A.

Method of Measurement: Linear Foot *(meter*- Measure longitudinally along the center of the unit.

Spec. No.: 2433 (cont.)
Contract Items: Remove (Item Name)
Place Used (Item Name)
Anchorages, Type _____

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record physical count. For the Final, submit the I.R.A. as Source Documentation.

Method of Measurement: Unit - Physical count.

Spec. No.: 2442
Contract Items: Remove Old Bridge

Unit - U.S.: L.S.
Unit - Metric: L.S.

Documentation: Record on the I.R.A. For the Final, submit the I.R.A. as Source Documentation.

Method of Measurement: Lump Sum - Pay the percent completed on each Partial Estimate. Pay 100 % of each item on the satisfactory completion.

Spec. No.:	**2451**
Contract Items:	**Structure Excavation, Class**
Unit - U.S.:	C.Y.
Unit - Metric:	*(Cubic Meter)*
Documentation:	See Plan Quantity.
Method of Measurement:	See Plan Quantity.

Spec. No.:	2451 (cont.)
Contract Items:	Granular Backfill (LV) Aggregate Backfill (LV) Granular Bedding (LV) Aggregate Bedding (LV) Course Filter Aggregate (LV) Fine Filter Aggregate (LV)
Unit - U.S.:	C.Y.
Unit - Metric:	*(Cubic Meter)*
Documentation:	Record vehicle measurements and volume computations on Form 2141. Record the loads used on Form 28226. For the Final, submit the above forms with proper reference on the I.R.A.
Method of Measurement:	Vehicular Measure - Compute vehicle capacities to closest 0.1 C.Y. (0.1 *m3*) Round total for each area to closest C.Y. (m*3)* per day.

Spec. No.:	2451 (cont.)
Contract Items:	Granular Backfill (CV) Aggregate Backfill (CV) Granular Bedding (CV) Aggregate Bedding (CV) Course Filter Aggregate (CV) Fine Filter Aggregate (CV)
Unit - U.S.:	C.Y.

Unit - Metric: (Cubic *Meter)*

Documentation: Record measurements and computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Volumetric Measure (By Computation) - Computations will be based on the dimensions shown in the Plans, described in the Specifications, or designated by the Engineer.

Spec. No.: 2451 (cont.)
Contract Items: Soil Bearing Tests

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record the number of tests completed to the Engineer's satisfaction. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Unit - Physical count.

Spec. No.: 2452
Contract Items: Untreated Timber Piling Delivered
Treated Timber Piling Delivered
Cast-in-Place Concrete Piling Delivered
Steel H-Piling Delivered

Unit - U.S.: L. F.
Unit - Metric: *(Meter)*

Documentation: Record on form 2210. For the Final, submit Form 2210 with proper reference on the L.R.A.

Method of Measurement: Linear Foot *(meter)*-Measured as a summation of the lengths (as authorized by the Engineer) of acceptable piling delivered to the job site.

Spec. No.: 2452 (cont.)
Contract Items: Unheated Timber Piling Driven
Treated Timber Piling Driven
Cast-in-Place Concrete Piling Driven

Steel H-Piling Driven

Unit -U.S.: L.F.
Unit - Metric: *(Meter)*

Documentation: Record on Form 2210. For the Final, submit Form 2210 in folder or booklet form with proper reference on the I.R.A.

Method of Measurement: Linear Foot (meter)-Measure length of acceptable piling driven below cut off

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Spec. No.: 2452 (cont.)
Contract Items: Unheated Timber Test Piles, _____ Feet *(m)* Long
Treated Timber Test Piles, _____ Feet *(m)* Long
Cast-in-Place Concrete Test Piles, _____ Feet (m) Long
Steel H-Test Piles, _____ Feet *(m)* Long

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record on Form 22 10. For the Final, submit Form 22 10 in folder or booklet form with proper reference on the I.R.A.

Method of Measurement: Unit - Physical count.

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Spec. No.: 2452 (cont.)
Contract Items: Reinforcement Bars

Unit - U.S.: Lb.
Unit - Metric: *(Kilogram)*

Documentation: Record computations. For the Final, submit these forms in booklet form with proper reference on the I.R.A.

Method of Measurement: Weight *(Mass)* *(By* Computation) - Compute the mass of reinforcement bars based on lengths shown in the Plans. The quantity measured will include only those splices, which are shown in the Plans. Use table shown in Specification 2472.4A. Do not include bar supports or tie wires.

Spec. No.: 2452 (cont.)
Contract Items: Pile Load Tests, Type _____

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record on the I.R.A. For the Final, submit the I.R.A. as Source Documentation.

Method of Measurement: Unit - Physical count.

Spec. No.: 2461
Contract Items: Concrete, Mix No. _____
Concrete, Grade _____

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: See Plan Quantity.

Method of Measurement: See Plan Quantity.

Spec. No.: 2461 (cont.)
Contract Items: Concrete, Mix _____
Concrete, Grade _____

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Use Approximate Volume show on Form 2158 minus accountable waste. For the Final, submit Forms 2158, initialed and dated by the field inspector, with proper reference on the I.R.A.

Method of Measurement: Volumetric Measure - Computed, theoretical volume based on the mass of the batch ingredient. The quantities so determined will be reduced for payment by all account able waste.

Spec. No.: 2472

Contract Items: **Reinforcement Bars**
Steel Fabric
Spiral Reinforcement

Unit - U.S.: Lb.
Unit - Metric: (Kilogram)

Documentation: Record measurements and computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Weight (Mass) (By Computation) - Compute the mass of reinforcement bars based on lengths shown in the Plans. The quantity measured will include only those splices, which are shown in the Plans. Use table shown in Specification 2472.4A. Do not include bar supports or tie wires.

When computing the weight of Steel Fabric, use the nominal mass incorporated into the structure based on the quantity shown in the Plans.

When computing mass of Spiral Reinforcement, use the table in the Mn/DOT Bridge Construction Manual.

Spec. No.: **2476**
Contract Items: **Painting Metal Structures**

Unit - U.S.: L.S.
Unit - Metric: L.S.

Documentation: Record on the I.R.A. as a decimal for Partial Estimate. For the Final, submit the I.R.A. as Source Documentation.

Method of Measurement: Lump Sum - Pay the percent completed on each Partial Estimate. Pay 100% of this item upon satisfactory completion.

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Spec. No.: 2476 (cont.)
Contract Items: Painting Metal Structures

Unit - U.S.: S. F.
Unit - Metric: (Square *Meter)*
Documentation: See Plan Quantity.

Method of Measurement: See Plan Quantity.

Spec. No.: 2478
Contract Items: Shop or Field Applied Epoxy Zinc-Rich Paint System

Unit - U.S.: L.S.
Unit - Metric: L. S.

Documentation: Record on the I.R.A. as a decimal for Partial Estimate. For the Final, submit the I.R.A. as Source Documentation.

Method of Measurement: Lump Sum - Pay the percent completed on each Partial Estimate. Pay 100% of this item upon satisfactory completion.

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Spec No.: 2478(cont.)
Contract Items: Epoxy Zinc-Rich Paint System (Shop)
Epoxy Zinc-Rich Paint System (Old)
Epoxy Zinc-Rich Paint System (New)

Unit - U.S.: S.F.
Unit - Metric: *(Square Meter)*

Documentation: See Plan Quantity.

Method of Measurement: See Plan Quantity.

Spec. No.: 2481
Contract Items: Joint Water proofing

Unit - U. S.: L. F.
Unit - Metric: *(Meter)*

Documentation: Record measurements. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Linear Foot *(meter)* Measure the length of the joints waterproofed.

Spec. No.:	**2501**
Contract Items:	**Pipe Culverts _____**
Spec. No.:	2501 (cont.)
Contract Items:	Culvert Excavation
Unit - U.S.:	C.Y.
Unit - Metric:	(Cubic *Meter)*
Documentation:	See Plan Quantity.
Method of Measurement:	See Plan Quantity.

Spec. No.:	2501 (cont.)
Contract Items:	Culverts, Cattle Passes (All types, sizes, classes, and shapes) Install _____
Unit -U.S.:	L. F.
Unit - Metric:	*(Meter)*
Documentation:	Record measurements. For the Final, submit these records with proper reference on the I.R.A.
Method of Measurement:	Linear Foot *(meter)* - Measured as a summation of the nominal lengths. Transitional sections will be measured as the larger size pipe.

Spec. No.:	2501 (cont.)
Contract Items:	Aprons (All types, sizes) Flap Gates Diaphragms Transition Sections _____ *(mm)* Safety Apron and Grate _____*(mm)* RC Dissipator Ring Install _____
Unit - U.S.:	Each
Unit - Metric:	Each

Documentation: Record physical count. For the Final, submit these records in booklet form with proper reference on the I.R.A.

Method of Measurement: Unit - Physical count (except that aprons furnished by the Department will be measured as additional culvert length

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Spec. No.: **2502**
Contract Items: **Drains (All types, sizes)**
Install _____

Unit - U.S.: L.F.
Unit - Metric: *(Meter)*

Documentation: Record Measurements. For the Final, submit these records with Proper reference on the I.R.A.

Method of Measurement: Linear Foot *(meter)* - Measured along centerline of drain from free outlet to junction with in-place pipe, or center of structure.

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Spec. No.: 2502 (cont.)
Contract Items: _____ " (mm) Pre-cast Concrete Headwall
Install _____

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record physical count. For the Final, submit these records with
proper reference on the I.R.A.

Method of Measurement: Unit - Physical count.

Spec. No.: **2503**
Contract Items: **Sewer Pipe (AR types, classes and shapes)**
Install _____

Unit - U.S.: L.F.
Unit - Metric: *(Meter)*

Documentation: Record measurements. For the Final, submit these records with proper reference on the LR.A.

Method of Measurement: Linear Foot *(meter)* - Measured along centerline of sewer from free outlet to junction with in-place pipe, or center of structure.
Transition sections will be measured as the larger size pipe.

Spec. No.: 2503 (cont.)
Contract Items: Flap Gates (All types, sizes, and shapes)
Install ____

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record physical count. For the Final, submit these records

with proper reference on the I.R.A.

Method of Measurement: Unit - Physical count.

Spec. No.: 2506
Manholes & Catch Basins

Contract Items: Construct Drainage Structure, Design _____
Reconstruct Drainage Structure

Unit - U.S.: L.F.
Unit - Metric: *(Meter)*

Documentation: Record measurements. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Linear Foot *(meter)* - Measure from the invert elevation of the outlet pipe to the bottom of the ring or frame casting, plus 0.70 feet (0.20 *m).* For T-Sections, measure from flow line to bottom casting. When apron is used on inlet, measure from inside periphery opposite opening m the joint where pipe and apron meet. Measure to the closest 0.1 L.F. (3*0 mm).*

Linear Foot *(meter)* - Measure from bottom of reconstructed portion to bottom of frame or ring casting, to the closest 0.1 L. F. *(30 mm)*

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Spec. No.: 2506 (cont.)
Contract Items: Construct Drainage Structure, Design _____

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record physical count. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Unit - Physical count. Measure as a complete structure including any casting furnished and installed.

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Spec. No.: 2506 (cont.)
Contract Items: Casting Assembly
Install Casting
Adjust Frame and Ring Casting

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record physical count. For the Final, submit these records with proper reference on the LR.A.

Method of Measurement: Unit - Physical count.

Spec. No.: 2511
Contract Items: Random Riprap, Class _____
Quarry-run Riprap
Hand-placed Riprap
Grouted Riprap
Granular Filter

Unit - U.S.: C.Y.
Unit - Metric: (Cubic *Meter)*

Documentation: Record measurements and computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Volumetric Measure (By Computation) - Measure the surface dimensions as staked in the field and multiply by the specified thickness.

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Spec. No.: 2511 (cont.)
Contract Items: Random Riprap, Class _____
Quarry-run Riprap
Granular Filter

Unit - U.S.: Ton
Unit - Metric: *(Metric Ton)*

Documentation: Record uniform loads on Form 28226. Record non-uniform loads on Form 2177, with tape, slip or other accumulation showing total per day or area. For the Final, submit the above applicable forms in booklet or packet form with proper reference on the I.R.A.

Method of Measurement: Weight *(Mass)* (Scale) - Weigh on approved scale. Round each load to closest 0.1 ton (0.*1 metric ton).* Round total for each area to closest ton *(metric ton)* per day.

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Spec. No.: 2511 (cont.)
Contract Items: Geo-textile Filter, Type _____

Unit - U.S.: S. Y.
Unit - Metric: *(Square Meter)*

Documentation: Record measurements and computations. For the Final, submit these records with proper reference on the LR.A.

Method of Measurement: Area Computation - Filter material will be measured and computed on the basis of actual surface dimensions as staked, with no allowance for overlaps.

Spec. No.: 2512
Contract Items: Gabion

Revet Mattress

Unit - U.S.: C. Y.
Unit - Metric: (Cubic *Meter)*

Documentation: See Plan Quantity.

Method of Measurement: See Plan Quantity.

Spec. No.: **2514**
Contract Items: **Concrete Slope Paving**
Aggregate Slope Paving

Unit - U.S.: S.Y.
Unit - Metric: *(Square Meter)*

Documentation: Record on Form 28233. Modify Form 28233 to show width of material placed. For the Final, submit these forms in packet or booklet form with proper reference on the I.R.A.

Method of Measurement: Area Computation - Compute the square feet (m2) of surface area as staked in field.

Spec. No.: **2520**
Contract Items: **Lean Mix Backfill**

Unit - U.S.: C.Y.
Unit - Metric: (Cubic *Meter)*

Documentation: Use Approximate Volume show on Form 2158 minus accountable waste. For the Final, submit Forms 2158, initialed and dated by the field inspector, with proper reference on the I.R.A.

Method of Measurement: Volumetric Measure - Computed, theoretical volume based on the mass of the individual batch ingredients. The quantities so determined will be reduced for payment by all account able waste.

Spec. No.: **2521**
Contract Items: _____ **(mm) Concrete Walk**
_____ **(mm) Bituminous Walk**

_____ (mm) Concrete Terrace
_____ (mm) Bituminous Terrace

Unit - U. S.: S. F.
Unit - Metric: *(Square Meter)*

Documentation: Record on Form 28233. Modify Form 28233 to show width of material placed. For the Final, submit these forms in packet or booklet form with proper reference on the I.R.A.

Method of Measurement: Area Computation - Each uniform thickness will be measured separately by top surface area.

Spec. No.: **2531**
Contract Items: **Concrete Curb & Gutter, Design _____**
Concrete Curb, Design _____
Concrete Median

Unit - U.S.: L. F.
Unit - Metric: *(Meter)*

Documentation: Record on Form 28233. For the Final, submit these forms in booklet form with proper reference on the I.R.A.

Method of Measurement: Linear Foot *(meter) - Measure* along face of the curb at the gutter line or along centerline of the longitudinal axis. (If a variance from basic design results in an increase in cross sectional area, a new Unit Price must be negotiated.)

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Spec. No.: 2531 (cont.)
Contract Items: Concrete Median
_____ *" (mm)* Concrete Driveway Pavement

Unit - U.S.: S.Y.
Unit - Metric: *(Square Meter)*

Documentation: Record on Form 28233. Modify Form 28233 to show width of material placed. For the Final, submit these forms in booklet form with proper reference on the I.R.A.

Method of Measurement: Area Computation - Measure length as staked, times plan width, or authorized change in width.

Spec. No.: 2531 (cont.)
Contract Items: Structural Concrete
Concrete (Type of Structure)

Unit -U.S.: C. Y.
Unit - Metric: (Cubic *Meter)*
Documentation: Record on Form 28233. Modify Form 28233 to show cross sectional area shown in the Plans. For the Final, submit these forms in booklet form with proper reference on the I.R.A.

Method of Measurement: Volumetric Measure (By Computation) – Computations based on the length as staked, times the cross-sectional area shown in the Plans or other-wise authorized.

Spec. No.: 2533
Contract Items: Concrete Median Barrier, Design 8334 Type A
Concrete Median Barrier, Design 8334 Type AA
Concrete Median Barrier, Design 8334 Type AL
Concrete Median Barrier, Design 8323
Concrete Median Barrier, Design 8334 Type ____
Concrete Median Barrier & Glass Screen, Design 8336

Unit - U.S.: L. F.
Unit - Metric: *(Meter)*

Documentation: Record on Form 28233. For the Final, submit these forms in booklet form with proper reference on the I.R.A.

Method of Measurement: Linear Foot *(meter)* - Measure length on the top of the barrier along the centerline of Type A barriers and 3 inches *(75 mm)* back of the front face of Type AA barriers. Transitions special and modified barriers, shall be measured on the top of the barrier and 3 inches *(75 mm)* back of the front face.

Spec. No.: 2535

Contract Items:	**Bituminous Curb**
Unit - U.S.:	L.F.
Unit - Metric:	*(Meter)*
Documentation:	Record measurements. For the Final, submit these records with proper reference on the I.R.A.
Method of Measurement:	Linear Foot *(meter)* - Measure along face of curb at the gutter line.

Spec. No.:	**2545**
Contract Items:	**Electric Lighting System** **Electric Power System** **Sign Lighting System** - **Fixtures** **Sign Lighting System Bridge Mounted** - **Fixtures** **Conduit System**
Unit - U.S.:	L. S.
Unit - Metric:	L. S.
Documentation:	Record on the I.R.A. as a decimal for Partial Estimate. For the Final, submit the I.R.A. as Source Documentation.
Method of Measurement:	Lump Sum - Pay the percent completed on each Partial Estimate. Pay 100% of this item upon satisfactory completion.

Spec. No.:	2545 (cont.)
Contract Items:	Light Unit, Type____ Luminaire Underpass Lighting Fixture, Type _____ Light Base, Design _____ Service Panel, _____ Type _____ Junction Box Pull Box Equipment Pad
Unit - U.S.:	Each
Unit - Metric:	Each

Documentation: Record physical count. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Unit - Physical count.

Spec. No.: 2545 (cont.)
Contract Items: _____ " (mm) Rigid Steel Conduit
_____ (mm) Intermediate Metal Conduit
_____ (mm) Nonmetallic Conduit
Underground Wire, ____Conductor No.
Armored Cable, _____ Conductor No. ____
Overhead Light Cable, _____Conductor No. _____

Unit - U.S.: L. F.
Unit - Metric: *(Meter)*

Documentation: Record Measurements. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Linear Foot *(meter)* - Measured by length between the end terminals along centerline of wire as installed.

Spec. No.: 2550
Traffic Management System
Contract Items: _____System
Systems Integration

Unit - U.S.: L.S.
Unit - Metric: L.S.

Documentation: Record on the I.R.A. as a decimal for Partial Estimate. For the Final, submit the I.R.A. as Source Documentation.

Method of Measurement: Lump Sum - Pay the percent completed on each Partial Estimate. Pay 100% of this item upon satisfactory completion.

Spec. No.: 2550 (cont.)
Contract Items: _____" (mm) Rigid Steel Conduit
_____ *(mm)* Pushed Conduit

_____ *(mm)* Non-metallic Conduit
_____ Cable _____ Pr. No. _____
_____ Cable _____ Conductor No. _____
_____ Cable _____
Fiber optic Trunk Cable ____ MM ____ SM

Unit - U.S.: L. F.
Unit - Metric: *(Meter)*

Documentation: Record measurements. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Linear Foot *(meter)* - Measured by length between the end terminals along centerline of wire as installed.

Spec. No.: 2550 (cont.)
Contract Items:
_____ Foundation
Hand hole, Type _____
Junction Box
Fiber optic Pigtail
Fiber optic Splice Vault
Outdoor Fiber Splice Enclosure
Buried Cable Sign
Truck Pad
____mm X ____ mm Loop Detector, Design _____
Loop Detector Splice

Ramp Control Signal, Design ____
Flasher Signal
Lane Control Signal
Closed Circuit Television Assembly
Changeable Message Sign, Design _____
_____Cabinet
Service Installation
Loop Detector Module
Controller
_____ Multiplexer
_____ Demultiplexer
_____ Range Video Transmitter
_____ Range Video Receiver

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record physical count. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Unit - Physical count.

Spec. No.: **2554**
Contract Items: **Traffic Barrier, Design _____**
Install Traffic Barrier, Design _____
Permanent Barricades

Unit - U.S.: L. F.
Unit - Metric: *(Meter)*

Documentation: Record measurements. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Linear Foot *(meter)* - Barriers of each design designation will be measured by length, to the nearest 0.3 m, between center of end posts continuous in each section. Barricades measured, by length to the nearest 0.3 m, from end to end of planks of each unit.

Spec. No.: 2554 (cont.)
Contract Items: Guide Post, Type _____
Install Guide Post, Type _____
Anchorage Assembly
End Treatment
Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record physical count. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Unit - Physical count.

Spec. No.: **2557**
Contract Items: **Wire Fence, Design _____**
Metal Post Extensions

Unit - U.S.: L. F.
Unit - Metric: *(Meter)*

Documentation: Record measurements. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Linear Foot *(meter)* - Measure along the bottom of the fence between end posts. Gates excluded.

Metal Post Extensions are determined as the difference between the standard post length and the actual post length as installed.

Spec. No.: 2557 (cont.)
Contract Items: Pedestrian Gate
Vehicular Gate
Wood Brace Assembly
Electrical Ground
Metal Brace Assembly
Metal Brace Assembly (Chain Link Fence)

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record physical count. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Unit - Physical count.

Spec. No.: 2560
Contract Items: Highway-Railroad Grade Crossing Signal System

Unit - U.S.: L.S.
Unit - Metric: L.S.

Documentation: Record on the I.R.A. as a decimal for the Partial Estimate. For the Final, submit the I.R.A. as Source Documentation.

Method of Measurement: Lump Sum - Pay the percent completed on each Partial Estimate. Pay 100% of this item upon satisfactory completion.

Spec. No.:	**2564** **Traffic Signs & Devices**
Contract Items:	**Saw Sign Panel Type_____**
Unit -U.S.:	L. F.
Unit - Metric:	*(Meter)*
Documentation:	Record measurements. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Linear Foot (meter) - Sawing will be measured by the length of the saw cut.

Spec. No.:	2564 (cont.)
Contract Items:	Concrete Footings - Type
Unit - U.S.:	C.Y.
Unit - Metric:	*(Cubic Meter)*
Documentation:	Record dimensions and computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Volumetric Measure (By Computation) - Use staked dimensions, include mortis used for capping the footings. Compute to the closest 0. 1 C.Y (0. 1 m

Spec. No.:	2564 (cont.)
Contract Items:	Foundation Special OH Sign Support Modify Post Install Sign Panel Type _____ Install Sign Type _____ Sign Legend Revision OH Sign Identification Plate Extend Walkway Support Friction Fuse Keeper Plate Delineator, Type _____ Reference Post Marker
Unit - U.S.:	Each
Unit - Metric:	Each

Documentation:	Record physical count. For the Final, submit these records with proper reference on the I.R.A.
Method of Measurement:	Unit - Physical count.

Spec. No.:	2564 (cont.)
Contract Items:	Traffic Control
Unit - U.S.:	L. S.
Unit - Metric:	L. S.
Documentation:	Record on the I.R.A. as a decimal for Partial Estimate. For the Final, submit the I.R.A. as Source Documentation.
Method of Measurement:	Lump-Sum - Pay the percent completed in each Partial Estimate. Pay 100% when all work has been completed and accepted.

Spec. No.:	2564 (cont.)
Contract Items:	Overhead Sign Structure Repair
Unit - U.S.:	Man-Hour
Unit - Metric:	Man-Hour
Documentation:	Record the hours on Form 2137. For the Final, submit these forms in booklet of folder form, with proper reference on the I.R.A.
Method of Measurement:	Miscellaneous - Measure the actual number of man-hours required to complete the repair, including use and operation of equipment, travel time within the project limits, and work and materials involved. Crane work and materials required to position and block the truss up off the ground are incidental.

Spec. No.:	2564 (cont.)
Contract Items:	Structural Steel - (Specify Item and Use)
Unit - U.S.:	Lb.
Unit - Metric:	*(Kilogram)*

Documentation: Record Structural Metals Engineer's quantities on the I.R.A. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Miscellaneous - Contractor will furnish physical properties to Structural Metals Engineer.

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Spec. No.: 2564 (cont.)
Contract Items: Structural Steel - (Specify Item and Use)

Unit - U.S.: Lb.
Unit - Metric: *(Kilogram)*

Documentation: Record computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Weight *(Mass)* *(By* Computation)-The computed mass will be based on the quantity tables included in the plans.

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Spec. No.: 2564 (cont.)
Contract Items: Structural Steel - (Specify Item and Use)

Unit - U.S.: Lb.
Unit - Metric: *(Kilogram)*

Documentation: Record weights. For the Final, submit the tickets with proper reference on the I.R.A.

Method of Measurement: Weight *(Mass)* (Scale) - Weigh on approved scale. If weighed by other than state scale man, the mass must be certified.

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Spec. No.: 2564 (cont.)
Contract Items: Sign Panels, Type _____
Furnish Sign Panels, Type ____
Sign Panel Overlay Type ____

Unit - U.S.:	S.F.
Unit - Metric:	*(Square Meter)*
Documentation:	Record measurements and computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Area Computation - Measurements and computations are based on nominal dimensions. Stop signs are to be considered rectangular. Yield signs are to be considered equilateral triangles. No deduction for round comers.

Spec. No.: **2565**
Contract Items: **Full-Traffic-Actuated Traffic Control Signal System**
Semi-Traffic-Actuated Traffic Control Signal System
Fixed-time Traffic Control Signal System

Unit - U.S.:	System
Unit - Metric:	System
Documentation:	Record physical count. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Unit - Physical count.

Spec. No.: **2571**
Plant Installation

Contract Items: **Coniferous, Deciduous or Ornamental _____**
(Size and root category) Tree or Shrub
Vine or Perennial _____ (Age or size and root category)
Vine or Plant
Transplant Tree, Shrub, Vine or Perennial (Size and type)

Unit - U.S.:	Tree, Shrub, Vine, Plant
Unit - Metric:	Tree, Shrub, Vine, Plant
Documentation:	Record physical count. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Unit - Physical count.

Note: *State Root Category: Seedling, bare root, machine moved, container grown, or balled and burlaped*

Spec No. **2572**
Contract Items: **Temporary Fence**

Unit - U.S.: L.F.
Unit - Metric: *(Meter)*

Documentation: Record location and measurements. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Linear Feet *(meter)* -Measure along the bottom of the fence between end posts for the fence placed, maintained, and removed.

Note: *If no bid item is provided for the following protection and restoration of vegetation items, back sheet items muse be created and paid for at the indicated unit prices: Temporary Fence at $2.50 per linear foot ($8. 00* per m); *Clean Root Cutting at$3.50per linear foot ($11.50* per m); *Water at $30.00 per 1, 000 (M) gallons ($8. 00* per m 3); *Sandy Loam Fill at $7.50per cubic yard ($10.* 00 per m 3); *and Prune Trees at $ 75.00 per hour.*

Spec. No.: **2573**
Contract Items: **Silt Fence, Type _____**
Temporary Pipe Down drain
Floatation. Silt Curtain, Type _____

Unit - U.S.: L.F.
Unit - Metric: *(Meter)*

Documentation: Record location and length. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Linear Foot *(meter)* - Measure along the base of the fence from outside to outside of the end posts for each section of fence. Measure down drain or Curtain length furnished and acceptably installed.

Note: *If no bid item is provided for the following temporary erosion control items, back sheet items must be created and paid far at the indicated unit prices: Silt Fence Heavy Duty (without maintenance) at $3.00 per linear foot ($10.* 00 per m); *Floatation Silt Curtain at $6 00 per linear foot ($20. 00* per m).

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Spec. No.: 2573 (cont.)
Contract Items: Sediment Trap Excavation

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record x-section notes in x-section book. Plot areas and show volume computations on x-section rolls. For the Final, submit the x-section books and rolls with proper reference on the I.R.A. See Records to be submitted.

Method of Measurement: Cross Section Measure (EV Excavated Volume) – Compute volume using the average-end area method of material in its original position. Sediment removed will be measured and added to the quantity of excavation.

Note: If no bid item is *provided for Sediment Trap Excavation, a back sheet item must be created and paid for at the unit price of $3.00 per cubic yard ($4. 00* per m 3).

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Spec. No.: 2573 (cont.)
Contract Items: Diversion Mound

Unit - U.S.: C. Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record x-section notes in x-section book. Plot areas and show volume computations on x-section rolls. For the Final, submit the x-section books and rolls with proper reference on the I.R.A. See Records to be Submitted.

Method of Measurement: Cross Section Measure (CV Compacted Volume) – Compacted volume will be determined by cross-section measure of the material in its final configuration.

Note: *If no bid item is provided for the Diversion Mound, a back sheet item must be created and paid for at the unit price of $3. 00 per cubic yard ($4. 00 per ml).*

Spec. No.: 2573 (cont.)
Contract Items: Sandbag Barrier
Sediment Mats
Unit - U.S.: S.F.

Unit - Metric: *(Square Meter)*

Documentation: Record measurements and computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Area Computation - Measure surface area acceptably installed based on actual measurement taken alone the length of the barrier times its height. When more than one thickness of bays is installed, the surface area of each layer of thickness will be measured and added to the quantity. Sediment mats will be measured by the area furnished and acceptably installed.

Note: *If no bid item is provided for the following temporary erosion control items, back sheet items must be created and paid for at the indicated unit prices. Additional Tillage ordered by the Engineer prior to seeding interim mulched areas will be paid for at the same unit price as disk anchoring, Disk Anchoring at $27.00 per acre ($67. 00 per ha).*

Spec. No.: 2573 (cont.)
Contract Items: Bituminous Lined Flume

Unit -U.S.: S.Y.
Unit - Metric: *(Square Meter)*

Documentation: Record measurements and computations. For the Final, submit

these records with proper reference on the I.R.A.

Method of Measurement: Area Computation - Measure on the basis of actual surface dimensions as placed without regard to bituminous mixture used or number of courses placed. Any damaged areas restored, by order of the Engineer, will be added to the original quantity.

Note: *If no bid item is provided for Bituminous Lined Flume, a back sheet item must be created and paid for at the unit price of*

$5.00per square yard ($6.00 per *m2*)

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Spec. No.: 2573 (cont.)
Contract Items: Bale Check
Riser Standpipe

Unit - U.S.: Each
Unit - Metric: Each

Documentation: Record physical count and location. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Unit - Physical count.

Note: *If no hid item is provided for the Bale Check, a back sheet item must be created and paid for at the unit price of $5.50 per bale.*

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Spec. No.: 2573 (cont.)
Contract Items: Sediment Removal, Backhoe

Unit - U.S.: Hour
Unit - Metric: Hour

Documentation: Record equipment hours on Form 2137. For the Final, submit these forms in booklet or folder form, with proper reference on the I.R.A.

Method of Measurement: Miscellaneous - Measured by the number of hours of actual equipment working time and necessary traveling time within the project limits.

Note: *If no bid item is provided for the Sediment Removal, a back sheet item must be created and paid for at the unit price of $80.00 per hour.*

Spec. No: 2573 (cont.)

Note: *If no bid item is provided for Temporary Seed (Mixtures I OOA115A), a back sheet item must be created and paid for at the price of $0.33 per kilogram.*

The Documentation and the Method of Measurement will be based on a like item found in this manual.

Spec. No.: **2575**
Contract Items: **Seeding**
Disk Anchoring
Mowing
Weed Spraying

Unit - U.S.: Acre
Unit - Metric: *(Hectare)*

Documentation: Record dimensions and computations for the accepted areas. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Area Computation - Measure and compute accepted areas. Areas reseeded by order of the Engineer, after the original seeding of the area was accepted, will be measured and added to the area originally seeded.

Spec. No.: 2575 (cont.)
Contract Items: Sodding Type _____
Polypropylene Plastic Netting
Wood Fiber Blanket, Type _____
Erosion Control Blankets, Type _____
Erosion Stabilization Blanket, Type _____

Unit - U. S.: S. Y.
Unit - Metric: *(Square Meter)*

Documentation: Record dimensions and computations. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Area Computation - Measure and compute accepted areas. Sodded areas covered in uniform strips may be determined from the number of strips placed times the strip dimensions. Where sod is placed shingle style in waterways, the product of the sod strip width and the number of strips placed will be used as the measurement. Areas recovered by order of the Engineer will be added to the original quantity.

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Spec. No.: 2575 (cont.)
Contract Items: Seed, Mixture _____ or (Species)
Commercial Fertilizer, Analysis

Unit - U.S.: Lb.
Unit - Metric: *(Kilogram)*

Documentation: Sack Method - Record the computations, utilizing the commercial tickets attached to the package or the weights printed on the package.

Invoice Documentation - Record the number of containers on the Invoice and initial.
For the Final, submit the computations or invoices, whichever is most appropriate, with proper reference on the I.R.A.

Method of Measurement: Weight *(Mass)* (By Computation, Sack) - Count the number of sacks used and multiply by the mass per sack.

Weight *(Mass)* (By Computation, Invoice)- Check off all the material delivered against that shown on the supplier's invoice.

In either case, material used in re-doing areas by order of the Engineer, after the original area was accepted, will be added to the original quantities.

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Spec. No.: 2575 (cont.)

Contract Items:	Seed, Mixture ____, or (Species) Mulch Material, Type ____
Unit - U.S.:	Lb./Ton
Unit - Metric:	(Kilogram)
Documentation:	Bulk Method (1) Record on Form 2177 (2) Record the mass from the commercial delivery ticket. For the Final, submit the above applicable records with proper reference on the I.R.A.
Method of Measurement:	Weight (Mass) (Scale) - use (1) or (2), whichever method is most appropriate. (1) Weigh on approved scales. (2) Use the mass from the manufacturer's Bill of Lading or approved commercial delivery tickets. Material used in re-doing areas by order of the Engineer, after the original area was accepted, will be added to the original quantities.

Spec. No.:	2575 (cont.)
Contract Items:	Mulch Material, Type
Unit - U. S.:	Ton
Unit - Metric:	*(Metric Ton)*
Documentation:	Bale Method - Record the computations, utilizing either the commercial tickets attached to the package, or the nor mass printed on the package. For the Final, submit the computations with the tickets (or bag fronts) with proper reference on the I.R.A.
Method of Measurement:	*Weight (Mass)* (By Computation) - Count the number of bales used and multiply by the nominal mass per bali in re-doing areas by order of the Engineer, after the original area was accepted, will be added to the original quantity.

Spec. No.: 2575 (cont.)

Contract Items:	Mulch Material, Type
Unit - U.S.:	Gal.
Unit - Metric:	*(Liter)*
Documentation:	Record on Form 21841. For the Final, submit these forms in booklet or packet form with proper reference on the 1.1

Method of Measurement: Volumetric Measure (Liquid) - Measure each load by sticking, by weight or by calibrated meter, convert to liquid 60' F (16 'Q. Re-doing of initially accepted areas, by order of the Engineer, will be added to original quantity.

Spec. No.:	2575 (cont.)
Contract Items:	Mulch Material, Type
Unit - U.S.:	C. Y.
Unit - Metric:	(Cubic *Meter)*
Documentation:	Record vehicle measurements and volume computations on Form 2141. Record the loads used on Form 28226- For the Final, submit these forms in booklet or folder form with proper reference on the I.R.A.

Method of Measurement: Vehicular Measure - Compute vehicle capacities to closest 0.1 C.Y. (0.1 m3) Round total for each area to the closest C. Y. (M) per day. Re-doing of initially accepted areas, by order of the Engineer, will be added to original quantity.

Spec. No.:	2575 (cont.)
Contract Items:	Water
Unit - U.S.:	1000 (M) Gal.
Unit - Metric:	*(Cubic Meter)*
Documentation:	Record on Form 21236. For the Final, submit these forms in booklet or packet form with proper reference on the 1.

Method of Measurement: Volumetric Measure (Liquid) - Load-Count Method – Measure and compute tank capacities to the closest 100 gallons (0.4 m 3) and count the number of loads used. Meter Met calibrated meter, and modify Form 21236 to show beginning and ending readings. When a municipal meter is used, a certificate from the municipal officer is acceptance Computations can be based on the cubic foot capacity of the tank converted to gallons, at 7.481 gallon per cubic feet the net density of the water, at 8.345 lbs. per gallon *(1.0 kg lL).*

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Spec. No.: 2575 (cont.)
Contract Items: Commercial Fertilizer, Analysis
Agricultural Lime
Compost, Grade I

Unit - U.S.: Ton/Lb.
Unit - Metric: *(Metric Ton)*

Documentation: Bulk Method

(1) Record on Form 2177
(2) (2) Record the mass from the commercial delivery ticket

For the Final, submit the above applicable records with proper reference on the I.R.A.

Method of Measurement: Weight (Mass) (Scale) - Use (1) or (2) whichever method is most appropriate.
(1) Weigh on approved scales.
(2) Use the mass from the manufacturer's Bill of Lading or commercial delivery tickets.

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Spec. No.: 2575 (cont.)
Contract Items: Weed Spray Mixture

Unit - U.S.: Gal.
Unit - Metric: *(Liter)*

Documentation: Container Method - Record the computations utilizing the volume printed on drums or pails.
Invoice Documentation - Record the number of pails or drums acceptably used and compute gallons *(liter)* used on invoice and initial.
For the Final, submit the computations or invoices. Whichever is most appropriate, with proper reference on the I.R.A.

Method of Measurement: Miscellaneous - Count the number of containers used and multiply by the gallons *(liter)* printed on container.
Miscellaneous - Use material suppliers invoice, check off all the material acceptably used.

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Spec. No.: 2575 (cont.)
Contract Items: Compost, Grade 2 (LV)

Unit - U.S.: C.Y.
Unit - Metric: *(Cubic Meter)*

Documentation: Record vehicle measurements and volume computations on Form 2141. Record the load-count of material 28226. For the Final, submit the above forms in booklet or folder form, with proper reference on the I.R.A.

Method of Measurement: Vehicular Measure (LV - Loose Volume) - Measure and compute the capacity of the hauling vehicle to the C.Y. (0. 1 M) Round the total for each area to the closest C. Y. (M) per day.

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Spec. No.: 2575 (cont.)
Contract Items: Turf Establishment

Unit - U.S.: L.S.
Unit - Metric: L.S.

Documentation: Record on the I.R.A. as a decimal for the Partial Estimate. For the Final, submit the I.R.A. as Source Documentation.

Method of Measurement: Lump Sum - Pay the percent completed on each

Partial Estimate. Pay 100% of this item upon satisfactory comp

Spec. No.: **2580**
Contract Items: **Temporary Lane Marking**

Unit - U.S.: L.F. or Road Station
Unit - Metric: *(Meter)*

Documentation: Record measurements. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: *Linear Feet (meter)* - Measure actual length of each line marked. Do not include the gap between the broken lines.
Road Station - Measure length in Road Stations of 100 feet from termini to termini.

Spec. No.: **2581**
Contract Items: **Removable Preformed Plastic Pavement Marking**

Unit - U.S.: L. F.
Unit - Metric: *(Meter)*

Documentation: Record measurements. For the Final, submit these records with proper reference on the I.R.A.

Method of Measurement: Linear Feet *(meter)* - Measure actual length of each different width, type, etc., of pavement marking furnished, placed and removed as specified.

Broken line will be measured by the actual length of material used and will not include the gap between the broken lines.

FORMS REQUIREMENTS

The following Mn/DOT forms required by section 5-591.420 are available on the Website @ http://www.dot.state.mn.us/const/tools/forms.html

Form 28233	Daily Accomplishment Report
Form 2137	Daily Equipment Labor Rental Record
Form 2177	Weighing Ticket
Form 2158	Ready Mix Concrete Batch Ticket
Form 2141	Computation of Truck Box Capacities
Form 2210	Pile Driving Report
Form 2264	Test Pile Report
Form 17119	Inventory of Salvage Bridge Material
Form 21236	Daily Water Report
Form 21841	Bituminous Application Record
Form 2190	Earthwork Computations
Form 2460	Work Order for Minor Extra Work
Form 2134	Supplemental Agreement –Regular Form
Form 2134	Supplemental Agreement – Part “A”
Form 2134	Supplemental Agreement – Part “B”
Form 2460	Change Order Form
Form 21659	Summary of Daily Force Account
Form 2119	Change in Contract Construction Status